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Introduction to Financial Management
for Foreign Military Staff Officers
by

Rodney E. Bryant
and
Paul R. Jensen

June, 1991

Thesis Advisor: Joseph San Miguel

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The nature of our research was to determine the content, scope and structure for a course in basic financial management which would be used to introduce foreign military officers to the field of financial management. The Naval Education and Training Security Assistance Field Activity (NETSAFA) indicated there was a need for a generic, introductory financial management course because of the numerous inquiries from foreign governments concerning financial management subject matter. Foreign officals requested that their staff officers , which have varing degrees of familiarity with the financial arena, be schooled in the basics of financial management. Research determined that the course should be approximately two weeks in lenght in order to adequately cover the following subject areas: accounting, budgeting, management fundamentals, auditing, management information systems (MIS) and total quality management (TQM). In addition to formulating the content, scope and structure of the course, a draft student and instructors' guide were developed and are included in Appendices A and B.

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by

Rodney E. Bryant
Lieutenant Commander, United States Navy
B.S., United States Naval Academy, 1979
and
Paul R. Jensen
Lieutenant Commander, United States Navy
B.S., Coastal Carolina College, 1979

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ABSTRACT

The nature of our research was to determine the content, scope and structure for a course in basic financial management which would be used to introduce foreign military officers to the field of financial management. The Naval Education and Training Security Assistance Field Activity (NETSAFA) indicated there was a need for a generic, introductory financial management course because of the numerous inquiries from foreign governments concerning financial management subject matter. Foreign officials requested that their staff officers, which have varying degrees of familiarity with the financial arena, be schooled in the basics of financial management. Research determined that the course should be approximately two weeks in length in order to adequately cover the following subject areas: accounting, budgeting, management fundamentals, auditing, management information systems (MIS) and total quality management (TQM). In addition to formulating the content, scope and structure of the course, a draft student and instructors' guide were developed and are included in Appendices A and B.

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TABLE OF CONTENTS

I. INTRODUCTION 1

A. BACKGROUND 1

B. OBJECTIVE 2

C. RESEARCH QUESTIONS 4

D. SCOPE, LIMITATIONS AND ASSUMPTIONS 5

1. Scope 5

2. Limitations 6

3. Assumptions 6

E. METHODOLOGY AND LITERATURE REVIEW 7

1. Methodology 7

2. Literature review 8

F. DEFINITIONS AND ABBREVIATIONS 9

G. ORGANIZATION OF STUDY 9

II. PROCEDURE FOR COURSE DEVELOPMENT 10

A. DATA COLLECTION 10

1. Existing courses of study 10

2. Review existing correspondence courses . . . 12

3. Potential courses of study 12

4. Current academic sources 13

5. Interview of training specialists 14

B. TARGET AUDIENCE 18

C. COURSE SUBJECT AREAS AND OBJECTIVES 20
D. COURSE CONTENT AND STRUCTURE 21
E. COURSE LOGISTICS 24
F. COST-BENEFIT 26

III. RECOMMENDATIONS/ALTERNATIVES 28
A. REFINE PROPOSED COURSE 28
1. Enhance current course objectives 28
2. Increase number of guest speakers 29
3. Use more case studies 29
4. Use forum format 30
B. EXPAND PROPOSED COURSE SCOPE 30
1. Economics (Micro & Macro) 30
2. Statistical analysis 31
3. Basic quantitative financial management . . 31
4. Strategy formulation 31
C. EXPAND THE TARGET AUDIENCE 32
1. Tailor course to higher grade officers . . . 32
2. Tailor course to entry level DOD personnel . 32
D. FEASIBILITY 33

IV. SUMMARY AND CONCLUSION 35
A. SUMMARY 35
B. CONCLUSION 36
C. ADDITIONAL QUESTIONS 37

LIST OF REFERENCES 39

APPENDIX A 41

APPENDIX B 42

INITIAL DISTRIBUTION LIST 43

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I. INTRODUCTION

A. BACKGROUND

The Naval Education and Training Security Assistance Field Activity (NETSAFA) determined there is a need for the development of a short but comprehensive financial management course of instruction to supplement and complement the professional courses of instruction the majority of foreign officers are receiving in Department of Defense courses of study. This was further solidified based on the requests of several foreign governments concerning the need to educate their military staff officers in the basics of financial management. The educational background and practical expertise of these officers is in a myriad of warfare specialties and their level of exposure to financial management is very low or nonexistent.

The very complex capital markets that exist within the United States force private sector companies to be very sophisticated with financial management practices they incorporate.(Stiglitz,1988) Manufacturing, service and retailing companies require valid and timely financial information in order to survive in a highly competitive capital market structure.(Rayburn,1989) Public sector and non-profit organizations benefit from the lessons learned in

the private sector.(Anthony,1988) The financial tools needed to survive in the private sector are also necessary in the public sector. The basic tools of financial management are also necessary for every manager at every level of a public or private sector organization.(Brigham,1988) Because of the sophisticated capital market and the associated financial and managerial techniques currently being used by the private sector, the public sector, ie., Department of Defense has greatly benefitted from the theories, practices and techniques that have been developed.(Stiglitz, 1988) This in turn has convinced many foreign governments with less sophisticated capital markets to send their officers to be schooled in these advanced theories, practices and techniques.

Investigative research conducted on various Department of Defense (DOD) financial management programs revealed the current training being provided to military staff and upper echelon military and civilian personnel are too specific focusing on U.S. oriented financial policies and procedures. In addition, many of these courses require prerequisites. More in-depth findings are contained in Chapter II.

B. OBJECTIVE

The primary object of this thesis was to design and develop a generic, introductory financial management course

which could be used to educate mid-grade, non-financial management foreign officers in basic financial management principles.

Financial management is "the planning, acquisition and utilization of funds in order to maximize the efficiency and value of the enterprise."(Brigham,1988) There are "financial implications in virtually all business decisions."(Brigham,1988) Managers should have some financial management knowledge in order to analyze financial information and make good decisions based on the analysis for their own specialized interests. In order to address the basic principles the course is divided into two sections.

The first section, Appendix A, is the student guide. It addresses six subject areas or modules. They are: accounting, budgeting, management fundamentals, auditing, information systems and total quality management. Each subject area stresses theory, current practices and basic techniques. The modules contain course objectives, general course reading material, example figures, additional subject area readings list and references.

The second section, Appendix B, is the instructor's guide. It also addresses the six subject areas. The instructor's guide focuses on teaching each module. It outlines the student guide and has lecture notes included within the outline. The lecture notes address the key ideas that the

instructor should stress to the student. The instuctors' guide is divided into modules and contain course objectives, course outline with lecture notes, viewgraphs for classroom presentation, additional readings list and references. Along with the two sections, supplemental case studies were forwarded.

C. RESEARCH QUESTIONS

The focus of research centered around determining the optimal course objectives, content, scope and structure in order to fulfill the professional needs of the foreign military officer. To define and direct the methodology a number of questions were composed to focus the research. They are:

1. Who is the target audience?
2. What is the target audiences' background?
3. What are some course expectations?
4. What are subject areas of study?
5. What principles should be taught?
6. What should be the sequence of instruction?
7. How should the material be presented to the class?
8. What course format should be used?
9. What are the costs of providing the course?
10. What are the logistic requirements of the course?
11. What are the benefits of offering the course?

The aforementioned questions were invaluable tools in directing the level of research in determining course content, scope and structure as well as determining course effectiveness.

The goal of research was not to arbitrarily design a course based upon our limited background, but rather to utilize the expertise and writings of knowledgeable educators.(Rummel,1963) This required consultations with experts in the various subject areas determined to be essential for this course and with education experts versed in the design, development and implementation of courses and courseware in order to maximize the quantity and quality of course related materials. This was extremely important considering the volume of research material available on the various subject areas and the time constraints placed upon the course length.

D. SCOPE, LIMITATIONS AND ASSUMPTIONS

1. Scope

The scope of the course was limited only by the length of time allotted for the course itself. The restrictions placed upon the material included or covered in the course itself were only such that the target audiences would obtain basic essentials of financial management such as accounting, general management and control principles. The goal was to provide quantity as well as quality information on the basics

of all available financial management related subjects. Also the course's scope was not to overlap with existing Department of Defense courses currently being taught. The general subject areas selected to be the foundation for the structure of the course and the most effective in meeting the aforementioned objectives were accounting, budgeting, management fundamentals, auditing, management information systems (MIS) and total quality management (TQM).

2. **Limitations**

There were two limitations placed upon the design and development of the course. They were course length and course scope. The length of the course could not exceed two weeks. The course scope could not overlap existing DOD courses. These limitations played major roles in formulating the structure and methodology ultimately used in the courses' design.

3. **Assumptions**

There were several assumptions made when designing the course which affected its content, structure and level of technical difficulty. The course was designed to be taught to a class composed of a cross-section of foreign military officers so their comprehension of the English language was assumed to be a prerequisite to the course. Although comprehension of English was assumed, technical jargon was avoided to the extent possible as to not undermine or change

the meaning of a particular meaning or thought. The assumption was made that the majority of the target audience had little to no financial related background since the expertise of the students would vary significantly. Due to the volume of material provided in the limited time allotted, the student guide, Appendix A, was designed and structured such that it contained examples and figures that supplemented the reading material. The student would be provided with a copy of the instructor's viewgraphs too. Also the student guide contains a glossary and additional reading list which complements the material being taught.

E. METHODOLOGY AND LITERATURE REVIEW

As mentioned earlier, the methodology selected for the structure of the course was significantly affected by the time restriction. Two weeks is an extremely limited amount of time to spend on any one of the six subject areas selected for inclusion in the course. Volumes of pertinent information is provided in the student guide in a very logical and methodical manner such that it can be referred to quickly. The student guide is designed to be a readers' digest of accurate and applicable information.

1. Methodology

A simple but comprehensive approach was used to develop the proposed course. Because of limited exposure to financial management and the educational development process,

it was determined that the best course of action would be to begin the research by reviewing existing financial management related courses offered by the Department of Defense, the Department of the Navy and various civilian institutions of learning. This included reviewing recommended textbooks, written material on the subject of financial management, obtaining copies of classroom material, interviewing educators and training experts and actually observing student interaction in the classroom environment. Using this methodology and research technique while considering the proposed target audience, the scope and the content of the course was developed. It was also instrumental in formulation of the courses' structure and courseware presentation.(Van Maanen,1982)

2. **Literature review**

The majority of the literature reviewed included information provided by the Naval Postgraduate School library, Department of Defense and Department of the Navy course outlines and correspondence courses, the Defense Systems Resources Management College and various academic institutions. The list of references is properly documented and appropriately footnoted in Appendix A.

F. DEFINITIONS AND ABBREVIATIONS

There are numerous definitions and abbreviations which are used in the text of the course. A consolidated glossary including all definitions and abbreviations is contained in Appendix A.

G. ORGANIZATION OF STUDY

The remaining three chapters provide the details of the research conducted. Chapter II begins with the specifics of the data collection process used and then addresses how this information was tailored to fit the target audience. It also contains specifics on how the subject areas were selected, their scope and ultimately the course structure. A brief discussion of course costs, logistics and benefits is also contained in Chapter II. Chapter III addresses the future of the course and focuses on course refinement, expansion and ultimate evolution of the course. Chapter IV, conclusion, summarizes the research work performed and provided recommendations based upon lessons learned as result of this research.

II. PROCEDURE FOR COURSE DEVELOPMENT

A. DATA COLLECTION

The first phase of course development was to collect as much available information as possible on the subject of financial management. Because this subject area is very broad it is important that current information be collected and the scope narrowed as quickly as possible. To do this five collection areas were utilized. They were existing courses of study, existing correspondence courses, potential or future Department of Defense courses, current academic sources and interviews with various Department of Defense and Department of the Navy training specialists. During this phase it was important to determine if this course of study had already been developed. If it had the need for developing a new course would be unnecessary.

1. Existing courses of study

There are three existing courses offered within the Department of Defense that address governmental financial management. These courses are primarily United States government oriented with a specific target audience identified. For example, the Air University located at Maxwell AFB, Alabama has a comptrollership course for O-5's and above. This course is designed to aid the officer or

civil servant who will be working at the major claimant level or above. The course is specific in nature and very narrow in scope focusing on Department of Defense policies and procedures. Another course reviewed was the Practical Comptrollership Course located at Naval Postgraduate School Monterey, California. This course was also very specific in nature and narrow in scope focusing on Department of the Navy's financial policies and procedures. Both courses address their own peculiar way of accounting, budgeting, controlling and auditing.

The third course being taught was the Air Forces' comptrollership course. This course focused on the Air Forces' financial policies and procedures.

While each course had a different target audience and their own way of doing business, there were some basic common features of every course. These similarities were useful and included in Appendices A and B. They are:

a. All three courses addressed accounting, budgeting and controlling.

b. All three courses utilized guest speakers to enhance the credibility and depth of the course.

c. All three courses had a student guide and instructors guide.

d. All three courses utilized classroom visual aids.

2. **Review existing cooerespondence courses**

The Department of Defense has published many correspondence courses in the areas of accounting, budgeting, management, auditing and controls. These courses are very narrow in scope and their subject matter is Department of Defense oriented. Currently, these courses are utilized as prerequisites for advancement within the general service (GS) career path.

While reviewing the specific courses offered in accounting and budgeting, some good information was provided. Primarily, correspondence courses are good if one subject area is being learned and one has a general knowledge of the course of study. The student focuses on one subject area and after completing the course has a tendency to forget some of the subject matter if he or she is not using the knowledge gained on a daily basis. Although correspondence courses are very good, the breadth and depth of information required by the student indicated the classroom environment would be more effective.

3. **Potential courses of study**

While conducting research on this subject area, it was discovered that another graduate student was tasked to develop a short course of study on financial management for the Engineering Duty Officer (EDO) basic course. The primary focus of this course concerned the fundamentals of financial

management in the Department of the Navy. While discussing the EDO course with Professor J. San Miguel and Professor B. Roberts, a basic course planning outline was provided for perusal. This outline was used as a guideline for planning the further development of the subject course.(ASTD,1989)

4. Current academic sources

The next step in the data gathering process was to review the current courses of study in the area of financial management at academic institutions. The first institute reviewed was the financial management curriculum at Naval Postgraduate School. The second institution reviewed was the MBA curriculum at Stanford University. The review consisted of looking at the methods of instruction, areas of study and whether or not a course of study exists that would satisfy the basic requirements of the subject course.(Jones,1985) During this process three points were identified and they are:

a. The existing courses of study are very detailed and require a considerable amount of time for study. The completion of the course of study would result in Masters Degrees.

b. Each course of study has similarities such as accounting, budgeting, management, auditing and controlling.

c. Neither course of study at the two institutions satisfy the time and money constraints set forth by NETSAFA.

5. **Interview of training specialists**

Finally, interviews with various Department of Defense, Department of the Navy and Department of the Air Force training specialists were conducted over a one year period. During the interviews that were conducted at various locations throughout the United States various questions were asked concerning the curriculum, the student composition, course structure and past training of foreign students. The interviews were conducted in a one-on-one environment which generated two-way communication between the interviewer and interviewee.(Dexter,1970) The feedback received from these training specialists shaped the format of the course's development. Information gathered from these interviews was complied and correlated to determine what subject areas were considered important, where to teach the course, what problems might be encountered, what should be the optimal course structure and what are the course prerequisites.

Each of the aforementioned areas' data was assembled, categorized, analyzed and correlated to determine the best mix

of subject matter that should be taught. It was determined that four areas of instruction should be taught.(Van Maanen,1982) They are:

a. Accounting

b. Budgeting

c. Controlling/Auditing

d. Management fundamentals

"Financial management is usually associated with the practice of accounting."(Symonds,1969) Accounting is defined as "a system for measuring the results of business activities and communicating those measurements to interested users."(Davidson,1988) Another definition is "an information system conveying specific information about a specific entity. The information is in financial terms and is restricted to information that can be made reasonably precise."(Davidson,1984) Financial information accounting provides is useful to every manager in some way or another. Therefore, basic accounting methods must be understood in order for the manager to have a good foundation on which finanacial management rests. The course addresses three accounting processes. They are: financial, cost and managerial.

Financial accounting is concerned with the historical reporting of the financial position and operations of a company or organization to external users on a regular basis.(Anthony,1988) It is necessary that financial

accounting reports and principles be understood prior to instruction in more advanced accounting methods.

Cost accounting is by definition "a sub-field of accounting that records, measures and reports information about costs."(Deakin,1987) Cost accounting provides managers with internal information and external information. (Rayburn,1989) The identification of costs and how these costs are accumulated and allocated are important in a manager's decision making process.

Managerial accounting enables an organizations managers accumulate financial information in order to effectively compete in whatever environment the organization is in. It is an "accounting system designed to do its job of decision making, planning and control."(Deakin,1987) Good managerial decisions are based on many sources of information. The analysis of valid and timely financial information is an important part of the decision making process.

Budgeting was found to be a crucial point in financial management. Budgeting expresses the financial requirements necessary to support an organizations objectives and goals. A budget is a planned program for a specific time period in terms of estimated costs, commitments, expenditures and financing. It is more complicated than merely a plan for expending funds. It is a means of two-way communication between organizational cost centers and upper level management.(Hitch,1986) The budget process touches every part

of an organization's infrastructure. Therefore, understanding the budgeting process is critical for every manager.

Control is the "process of assuring that the actual activities conform to planned activities."(Stoner,1989) Controls are used throughout an organization to ensure standards are established, performance is measured and deviations are corrected. Financial controls are a part of the organization's overall control mechanism. Managers at all levels must understand and comply with the organization's controls. A sub-set of controls is the audit process. Auditing is the process by which independent entities accumulate and evaluate quantifiable information about the organization.(Arens,1988) There are two types of audits. They are: external and internal.(Burton,1982) The manager must understand the differences between these audits, the areas they are concerned with and their purpose. Generally, audits measure the effectiveness of the organization's controls by using quantifiable data. This data is usually accumulated from financial statements, accounting practices and other relevant financial data. (Kropatkin,1987) Therefore, the manager must have a good working knowledge of financial management in order to understand the organization's controls and associated audits.

Finally, an understanding of management fundamentals is critical for any manager. Management is "the process of planning, organizing, leading and controlling the work of

organization members."(Stoner,1989) Management is using all available organizational resources to reach stated organizational goals.(Stoner,1989) The importance of understanding the four management principles cannot be over stressed. Each principle affects the manager's understanding of the appropriate application of financial principles, practices and techniques.

Based upon the data collected and research conducted, the aforementioned areas became the foundation of the course. In conjunction with data collection the courses' target audience was being determined.

B. TARGET AUDIENCE

During the data collection phase, the training specialists at NETSAFA discussed their ideas on the type of student that should be taught if this generic course of instruction was available. The target audience would be composed of mid-grade foreign officers who have little or no financial management exposure. These officers would be front-runners in their respective military organizations. Based on this prerequisite, interviews with foreign officers that had previously completed course(s) of study in Department of Defense or Department of the Navy financial management courses were conducted. The purpose of the interviews was to gain information on the necessity of a basic financial management

course for foreign officers and then determine why existing Department of Defense courses were not meeting the foreign officer's needs.

A series of interviews were conducted with several foreign officers. These officers were senior officers (O-5's) of the Royal Saudi Naval Forces (RSNF) and had completed several Department of Defense comptrollership courses. The interviews were conducted one-on-one to generate two-way communication and to put the interviewee at ease.(Rummel,1963) The results of the interviews are as follows:

1. The current Department of Defense and Department of the Navy comptrollership courses are too United States government specific. Although the information disseminated was informative and nice to know it did not help the foreign officer understand the basics of financial management. The information does not help the foreign officer understand the basic financial relationships necessary to help him do his job in his specific country.

2. The course of study at the Department of Defenses' comptrollership course at the Air University is too long. The Practical Comptrollership course at NPS is the right length but does not provide the basic information needed by the foreign officer.

3. All foreign officers interviewed indicated that what is needed is a basic, fundamental course that introduces them to financial management in a generic way. The course would

give them the tools and flexibility necessary to apply the principles and procedures learned to their own unique management situations.

4. The course of study should include general subject matter such as accounting, budgeting, controls, management fundamentals, management information systems and total quality management.

5. The course should be provided to mid-grade foreign officers with little exposure to financial management.

Therefore, based on the interviews and NETSAFA's recommended target audience it was determined that mid-grade, non-financial manager foreign officers should be the initial target audience.

C. COURSE SUBJECT AREAS AND OBJECTIVES

Once the target audience was identified then the course subject areas were determined. Based on the overlapping subject areas discussed in the data collection phase and the recommendations made by both training specialists and the foreign officers interviewed the following course subject areas were formalized and divided into six modules:

1. Accounting
2. Budgeting
3. Management fundamentals
4. Auditing

5. Management Information Systems (MIS)

6. Total Quality Management (TQM)

The next step was to develop subject area objectives. Using reference material complied during the data collection phase for each subject area, and outline for each subject area or module was created.(Ref. ASTD) Based on the outline, basic objectives for accounting, budgeting, management, auditing, MIS and TQM were formulated. These objectives were specifically defined later during the course content and structure phase and are included in Appendices A and B.

D. COURSE CONTENT AND STRUCTURE

The first step in developing the content and structure of the proposed course began with the compilation of reference material, the content of courseware being utilized in current Department of Defense comptrollership courses, and general curriculum course structures at NPS.Using the basic planning outline and the breakdown of course subject areas into six modules the following course content was developed:

1. **ACCOUNTING**
    - **a. Financial accounting**
    - **b. Cost accounting**
    - **c. Managerial accounting**
2. **BUDGETING**
    - **a. Planning**

b. **Programming**

c. **Budgeting**

3. **MANAGEMENT FUNDAMENTALS**

a. **Planning**

b. **Organizing**

c. **Leading**

d. **Controlling**

4. **AUDITING**

a. **Auditing**

b. **Auditing standards**

c. **Audit risk**

d. **Audit evidence**

5. **MANAGEMENT INFORMATION SYSTEMS (MIS)**

a. **Information systems**

b. **Information and management**

c. **Computers and data processing**

6. **TOTAL QUALITY MANAGEMENT (TQM)**

a. **TQM Philosophy**

b. **TQM Process**

The aforementioned course content was constrained by the depth and length of the course. Because the experience level of the target audience was limited, the content of the course had to be limited in scope. It was essential that the course material be directed to give the potential student a basic knowledge of each specific subject area. This would later enable the student to adequately seek additional information

in the subject area of interest. The course would also enable the student to apply the subject area information to any specific field of endeavor. Last the course could not be over two weeks in length. The content of the course is detailed in-depth in Appendix A.

In conjunction with formulating the course content the structure of the course was developed. The structure of the course was constrained in two ways. First the course had to be flexible. Because a series of guest speakers would be used in conjunction with classroom instruction, the modification of courseware must be flexible. Second the course must be taught in a two week period. Because most foreign students are scheduled for many short courses during there training time in the United States it was imperative the course be taught during a two week window. Therefore the following course structure was developed:

1. **STUDENT GUIDE**
    - **a. Course readings**
    - **b. Figures**
    - **c. Additional reading lists**
    - **d. References**
2. **INSTRUCTORS GUIDE**
    - **a. Lesson outline with lecture notes**
    - **b. Viewgraphs**
3. **CASE STUDIES**
    - **a. Case study per module**

During the course each student will be provided with a copy of the instructor's viewgraphs. This will enable the student to listen more effectively rather than trying to take comprehensive notes. At the end of each module a case study will be assigned to the class. The class will be divided into teams, to prepare case analysis, and will be expected to discuss the case during the next class session. The case study approach enables the student to gain a working knowledge of the material and to apply that knowledge in a constructive way to a case environment.(Anthony,1988) This in turn solidifies the students knowledge base. Finally during the two week course various guest speakers will provide real time information to the student on each module.

E. COURSE LOGISTICS

One of the primary considerations of the proposed course is cost. The majority of costs to be incurred center around logistics.(Hitch,1986) The logistic requirements have several primary constraints that must be addressed. They are:

1. The course teaching site must be centrally located. Foreign students are primarily trained at various locations on the east coast. They are, however, trained at several sites on the west coast. Usually their east coast training precedes their west coast training. Therefore, this training should be conducted either after they have finished training at the east coast sites or after completing training at west coast sites.

2. Teaching site support must be readily available. It is imperative that existing facilities and training support be readily available prior to course start-up. No new construction or major modifications of facilities to accommodate this training will be considered.

3. Time frame for the course is two weeks once a year. This course will initially be taught once a year at the centralized site. It is imperative that the lodging and transportation support of students, instructors and guest speakers be readily available.

Because of the aforementioned constraints, the teaching site selected was Pensacola, Florida. The facilities available at Chief of Naval Education and Training headquarters (CNET) fulfill every requirement and minimize all constraints in the following ways:

1. The course teaching site is centrally located.

2. The site is located in the same area as NETSAFA.

3. The facilities are readily available with no major modifications necessary.

4. The site is located at NAS Pensacola. Transportation is readily available for both students and guest speakers.

5. Lodging at the BOQ is available for students, instructors and guest speakers.

6. Control of Foreign Military Sales (FMS) expenses can be readily monitored because of the nearness of NETSAFA to the training site.

F. COST-BENEFIT

After compiling cost figures for the logistic requirements listed above, the ability to assign dollar figures to the benefits of offering this proposed training to foreign officers is not feasible. The value of providing basic financial management tools to foreign officers that have little financial management exposure is intrinsic. One can however speculate on providing a source of information to these officers that may provide them with enhanced insight into the importance of financial information in everything they do. As is pointed out in the course overview, this course is designed to give the non-financial manager a basic knowledge of financial management tools in order to enhance or improve his or her abilities to make specialized decisions. It is making good informative decisions that equate to the real benefits. (Stiglitz,1986)

Another possible benefit is through development of common interests during the course of training. Common interests equate to the development of closer ties between U.S. and foreign officers. These ties could benefit future joint operations between the United States and the foreign governments who's officers have been U.S. trained.

Finally the introduction to basic financial management tools benefit the non-financial manager by giving him or her a solid foundation that can be built upon by other financial

courses. For example completing this proposed course will enable the student to understand the terminology and methodology used in the DOD's comptrollership course. This is beneficial if the student desires to increase his or her knowledge of U.S. financial policies and procedures. (Anthony,1988)

III. RECOMMENDATIONS/ALTERNATIVES

A. REFINE PROPOSED COURSE

The proposed course has been initially designed for mid-grade non-financial manager foreign officers. This course could be revised to include more in-depth information or tailored to enhance one or more of the course subjects areas. If the course is revised it could be accomplished in one or more of the following ways:

1. Enhance current course objectives

The current course objectives are fundamental in nature. In order to enhance the course objectives the course must be refined in one of two ways.

First, each one of the six subject areas could be refined. For example, in the accounting module, the section on cost accounting could be modified to include information on unit costing. This modification would enhance the course objectives and place more emphasis on the cost accounting process.(Deakin,1988) Another example would be to provide more information on TQM techniques and tools. This would enhance the TQM objectives and place increased emphasis on the technical features of TQM.(Deming,1986)

Second, the entire course itself could be refined all at once. This could be done to emphasize one or more subject

areas or to increase course length to provide more in-depth information on specific subject areas. For example, some students may desire to learn more about MIS and its interrelationships with budgeting and TQM.(Senn,1988) The entire course itself must be refined to address this interrelationship.

2. **Increase number of guest speakers**

If the desire is to provide more guest speakers to increase the student's exposure to guest speaker experiences then the amount of classroom instruction must be reduced. This requires refining the course to enable more time for guest speakers and less time for classroom instruction. This may be necessary if more than one class per year is scheduled and there are many excellent guest speakers readily available.

3. **Use more case studies**

Eventually the classroom instruction approach should give way to the case study approach. The case study approach is an outstanding way to involve the class in a real time scenario, it solidifies the material the student has learned and enables the student to gain first hand experience in a controlled environment.(Hawkins,1986) To place more emphasis on case studies rather than classroom instruction the course must be refined to permit this evolution to occur.

4. Use forum format

The use of a forum or seminar format is one that caters to the primary use of guest speakers. This approach is good for those individuals which have a good working knowledge of the material being discussed. This is not a good instruction format for individuals who have very little experience or are weak in the area being discussed. If this training approach is used then the course material should be refined to comply with this type of format.

B. EXPAND PROPOSED COURSE SCOPE

This course is primarily concerned with six basic areas of instruction. These subject areas are necessary for understanding the concept of financial management. Six subject areas were selected for adequate coverage and there are other areas that could be included in an expanded course of study. An expanded course of study would lengthen the course and provide more overall knowledge of the subject of financial management. The following are some of the ways this course could expand in one or more subject areas:

1. Economics (Micro & Macro)

An overview of both micro and macro economic schools of thought could be presented. Economics plays a major role in the way one analyzes his or her financial resources. For

example a good understanding of how a recession affects world economies can be very beneficial to the one who manages financial resources.(Stiglitz,1986)

2. **Statistical analysis**

Statistics and operations analysis are very much at the forefront of the technical manager's school of thought. This course could be expanded to include a basic overview of statistical analysis and how it effects every manager. The focus of the statistical analysis in this course will be in the area of financial management.(Markland,1987)

3. **Basic quantitative financial management**

Another way this course could be expanded would be to include a module on quantitative financial management. This would focus on quantitative problem solving and the use of various ratios and present and future values. Expansion of the course in this direction would increase course length and would probably not be cost effective.(Bringham,1991)

4. **Strategy formulation**

The concept of strategy and the development of strategic thought is very important. The proposed course could be expanded to include a module on the strategy formulation and implementation process. This subject area more any previously mentioned would enhance the proposed course and give the student a greater prospective on how financial management fits into the scheme of things.(Bryson,1990)

C. EXPAND THE TARGET AUDIENCE

Currently the proposed target audience is comprised of mid-grade, non-financial manager foreign officers with little or no financial management exposure. There is a need for this course in their training pipeline. But there is also a need for higher grade foreign officers to be exposed to basic financial management and for entry level Department of Defense civil servants to be exposed to basic financial management. The proposed course's target audience could be expanded in the following ways:

1. Tailor course to higher grade officers

There are higher grade foreign officers that need exposure to financial management fundamentals. These officers have very little exposure to financial management and need the tools made available in this course to enable them to do their specific job better. To accomplish the task to expand the target audience to include this group of individuals the course itself must be tailored. This also includes refining the course into an executive level course which will focus on the major concepts of the subject area. This will also mean the course length should be reduced.

2. Tailor course to entry level DOD personnel

Department of Defense civil servants must complete prerequisite training requirements in order to be promoted to the next grade. Specifically the financial grades, accounting

technician, budget analysis, budget assistant, etc., must complete correspondence courses in specific financial related subject areas before they can be promoted to the next grade. This course could be tailored to satisfy perquisite requirements for entry level GS's. The course could be modified to include more Department of Defense and Department of the Navy specifics as well as providing the fundamental subject areas of financial management.

D. FEASIBILITY

Initially the proposed course must meet the requirements set forth by NETSAFA and satisfy the needs of the foreign officer target audience. This course satisfies the two aforementioned requirements. It will provide fundamental financial management tools that the foreign officer can use to do his or her job better.

It is feasible to refine this course to enhance the course objectives, include more guest speakers and use more case studies. It is also feasible that the course could be expanded to include economics, statistics, quantitative financial management and strategic analysis. Furthermore, the course has flexibility to expand the target audience. (Bryson,1990)

Future course modifications will be necessary to ensure course material timeliness. Also the course structure could be modified in the following ways:

1. Using computer based software, the course could be self-taught using a smart system approach. Each module could be taught using this method with case studies and g u e s t speakers utilized for a class forum approach.(Senn,1988)

2. Another concept in teaching is using video taped lectures from some of the countries' foremost authorities in various academic disciplines. These individuals, well-known professors and outstanding lecturers, would provide lectures on specific financial management related topics. These video lectures would supplement the student's course reading material and complement the guest speakers personal appearances. Also the cost of obtaining these lectures would be minimal and could be made available for individual student purchase.

IV. SUMMARY AND CONCLUSION

A. SUMMARY

As previously mentioned, the primary objective was to research subject matter on the topic of financial management and use that subject matter to develop a course of study that could be used to expose foreign military officers to the fundamentals of financial management. In order to achieve the objective, the following criteria had to be addressed:

1. Identify and focus on the target audience.

2. Collect, modify and formulate the course content and scope.

3. Determine the length and structure of how the course could most effectively and efficiently be presented.

This required that research and analysis be conducted on volumes of financial and management related material. Also observation and evaluation of various teaching methods, aids and techniques had to be accomplished. The difficult part was finding the delicate balance of determining how much information should be provided, in a relatively short yet unspecified time frame, to foreign military students. The only common element in the process was the students were to be foreign officers, but even then, each would have varying

degrees of educational background in the financial management arena. Each one of the aforementioned elements, in the course development process, had a definite and consequential affect on each other.

B. CONCLUSION

As a result of the foregoing research and analysis, the following was concluded:

1. The course of instruction should be limited to two weeks of instruction to obtain optimal coverage of the six subject areas.

2. The course of instruction should consist of six primary modules to be taught in the following order:

   a. Accounting

   b. Budgeting

   c. Management Fundamentals

   d. Auditing

   e. Management Information Systems

   f. Total Quality Management (TQM)

3. Every module in the course of instruction should be taught in approximately one an a half days each consisting of three phases.

   a. Phase One: Class lectures, material presentation, and question and answer session.

   b. Phase Two: Guest Speaker to talk on same or related area of study.

c. Phase Three: Case study relating to each module of instruction and class lecture.

4. The course of instruction should consist of a student guide which would contain course readings, figures, references, and an additional readings lists. A copy of the proposed student guide is contained in Appendix A.

5. The course of instruction should consist of an instructors' guide which would contain the lesson outline with lecture notes and view graphs for class presentation. A copy of the proposed instructors' guide is contained in Appendix B.

C. ADDITIONAL QUESTIONS

Based upon the aforementioned research, analysis and course development there are a number of additional questions which may require further evaluation and research. The following is a list these questions:

1. Would it be cost beneficial to refine the proposed course of instruction in the future? Since this is a new course, feedback provided from the students should be promptly reviewed, evaluated, and incorporated if it is deemed applicable and appropriate as soon as possible. It is very important to refine most areas of study as time passes, but is it important in it's early stages?

2. Would course scope expansion be feasible and if so would it be effective? The course content consists of six primary areas of study which could be expanded to include

topics such as economics and statistics. If expanded the researcher must be conscious of the time constraint which might remain a factor.

3. Would expansion of the target audience be feasible and if so how could it be expanded to encompass the optimal target audience? Some possibilities might be the inclusion of higher ranking foreign officers rather than the proposed mid-grade foreign military officers or the course could be tailored for entry level General Services (GS) personnel as a prerequisite for other higher level training. If the target audience is expanded, one must be sure to structure the course material such that maximum benefit is gained.

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APPENDIX A

SYNOPSIS

The Student Guide is comprised of six subject areas containing subject area objectives, reading material, examples and figures to supplement the reading material, glossary of terms, list of references and an additional readings list.

STUDENT GUIDE

STUDENT GUIDE
TABLE OF CONTENTS

- MODULES
- FIGURES
- GLOSSARY

STUDENT GUIDE

COURSE OVERVIEW

This course is designed to provide a fundamental approach to financial management for foreign military officer, non-financial managers. Financial management is "the planning, acquisition and utilization of funds in order to maximize the efficiency and value of the enterprise."[Ref. 2, pg. 7] It is important to note that there are "financial implications in virtually all business decisions."[Ref. 2, pg. 7] The manager must have some financial knowledge in order to analyze financial information and make good decisions based on the analysis for their own specialized interests. This course is designed to give the non-financial manager a basic knowledge of financial management tools in order to enhance or improve his or her abilities to make specialized decisions. The course will address the following subjects:

A. Module A: Accounting

B. Module B: Budgeting

C. Module C: Management Fundamentals

D. Module D: Auditing

E. Module E: Management Information Systems

F. Module F: Total Quality Management (TQM)

MODULE - A

ACCOUNTING

MODULE A - ACCOUNTING

INDEX

MODULE A ACCOUNTING

INDEX 3

OVERVIEW . . ACCOUNTING 4

LEARNING OBJECTIVES (MODULE A) 5

LESSON 1 . . FINANCIAL ACCOUNTING . . 8

A. What is financial accounting? 8

B. Objectives of financial reporting . . . 9

C. Primary accounting statements 9

LESSON 2 . . COST ACCOUNTING . . . 16

A. What is cost accounting? 16

B. Principles of cost accounting 16

1. Cost accumulation 16

2. Cost allocation 18

C. Methods of cost accounting 19

1. Job order costing 19

2. Process costing 20

LESSON 3 . . MANAGERIAL ACCOUNTING . . 22

A. What is managerial accounting? . . . 22

B. Variance analysis 22

C. Variances 23

D. Cost analysis performance 24

E. Fixed manufacturing variances 25

F. Managerial vs Financial accounting . . . 25

REFERENCES 27

FIGURES VA-1

ADDITIONAL READINGS 28

MODULE A

ACCOUNTING OVERVIEW

This module addresses accounting and briefly describes each method of accounting. Each module will be preceded by a list of learning objectives that the student should be familiar with upon completion of the module and associated class discussions. At the end of each module an applicable case study will be assigned and discussed using the principles and knowledge gained from the lessons.

Accounting is defined as "a system for measuring the results of business activities and communicating those measurements to interested users." [Reference 3, pg. 2] Another definition is "an information system conveying specific information about a specific entity. The information is in financial terms and is restricted to information that can be made reasonably precise." [Reference 4, pg. 36]

There are three accounting processes utilized in both corporate and government areas. These are: financial, cost and managerial accounting. These particular processes will be discussed further in the next three lessons.

MODULE A

LEARNING OBJECTIVES

LESSON 1.

- Understand the definition of accounting.
- Be familiar with the three accounting processes.
- Know the definition of financial accounting.
- Be familiar with the seven objectives of financial reporting.
- Be familiar with the three accounting statements and their uses.
- Understand their differences.
- Define asset.
- Define liability.
- Define stockholder equity.
- Know the balance sheet equation.
- Know what net income(loss) is.
- Define revenue.
- Define expense.
- Be familiar with the net income(loss) equation.
- Be familiar with the statement of cash flows.
- Define operations.
- Define investing.
- Define financing.

LEARNING OBJECTIVES (CONT.)

LESSON 2.

- Define cost accounting.
- Be familiar with the two principles methods of cost accounting.
- Understand what cost accumulation is.
- Understand what cost allocation is.
- Be familiar with the three conversion processes: merchandising, manufacturing and services.
- Be familiar with the basic inventory formula.
- Understand the uses of cost allocation.
- Be familiar with the two cost allocation methods.
- Be familiar with job order costing and the methods used for accumulating and allocating costs under this method.
- Be familiar with process costing and the methods used for accumulating and allocating costs under this method.
- Understand the differences between job order and process costing.

LESSON 3.

- Define managerial accounting.
- Understand the uses of managerial accounting.
- Be familiar with the term "variance analysis".
- Define standard.
- Be familiar with variable, fixed and mixed costs.

MODULE A

LEARNING OBJECTIVES (CONT.)

- Understand what a price variance is.
- Understand what an efficiency variance is.
- Be familiar with cost analysis performance.
- Be familiar with the various types of variances and their causes.
- Understand the differences between variable cost variances and fixed costs variances.
- Be familiar with the differences between managerial and financial accounting.

MODULE A - LESSON 1

FINANCIAL ACCOUNTING

WHAT IS FINANCIAL ACCOUNTING?

Financial accounting is defined as, "the accounting for assets, equities, revenues and expenses of a business". [Reference 4, pg. 36] Financial accounting is primarily concerned with the historical reporting of the financial position and operations of an entity to external users on a regular, periodic basis.

Reporting financial position has seven objectives [Reference 3, pg. 17]. They are:

1) Financial reporting should provide information useful for making rational investment and credit decisions.

2) Financial reporting should provide information to help investors and creditors assess the amount, timing and uncertainty of cash flows.

3) Financial reporting should provide information about the economic resources of a firm and the claims on those resources.

4) Financial reporting should provide information about a firm's operating performance during a period.

5) Financial reporting should provide information about how an enterprise obtains and uses cash.

6) Financial reporting should provide information about how management has discharged its stewardship responsibility to owners.

7) Financial reporting should include explanations and interpretations to help users understand the financial information provided.

The aforementioned objectives are achieved with the use of an annual report. The annual report contains two types of information. First there is verbal information presented by the entities president or chief executive officer (CEO) which describes the entities operations. The second type of information is presented in the form of financial statements.[Reference 2, pg. 758] There are usually three types of financial statements contained within the annual report. These statements focus on specific areas of a firm or entity but are not necessarily mutually exclusive. The primary statements used are: balance sheet, income statement and statement of cash flows.

Balance Sheet

"The balance sheet presents a snapshot of the investments of a firm (assets) and the financing of those investments (liabilities and shareholder's equity) as of a specific time."[Reference 3, pg. 32] The balance sheet is used to determine whether total assets equal total liabilities plus total stockholder's equity as displayed in the following equation: **(See Figure A-1)**

ASSETS = LIABILITIES + STOCKHOLDER'S EQUITY

There are three concepts that must be understood in order to effectively produce and utilize the balance sheet. They are:

1) Asset classification - "Assets are economic resources. An assets is an item that has the ability or potential to provide future benefits to a firm."[Reference 3, pp. 38-39] They can be either current or non-current, tangible or intangible. A current asset is an asset that can be readily turned into cash, sold or consumed within one year. Some examples of current assets are: cash, accounts receivable, inventory, etc. Some examples of non-current assets, usually held and used for several years, are: land, buildings, equipment, etc. A tangible asset is an "asset that can be seen or touched; they have physical substance."[Reference 1, pg. 44] Intangible assets are "assets that have no physical substance, such as protection provided by an insurance policy or goodwill."[Reference 1, pg. 41]

2) Liability classification - "A liability is the probable future sacrifice of economic benefits arising from present obligations of a particular entity to transfer assets or to provide services to other entities in the future as a result of past transactions or events."[Reference 4, pp. 39-40] Liabilities simply are "the equity or claim of a creditor."[Reference 1, pg. 42] Liabilities can be either current or non-current. The difference between the two types of liabilities is the time in which the liability will be liquidated, usually within one year for a current liability. Some examples of current liabilities are: accounts payable to suppliers, accounts payable to employees, etc.

An example of a non-current asset is bonds payable to lenders.

3) Stockholder's Equity - "Stockholder's equity is the owner's claim on the assets of a firm."[Reference 3, pg. 41] Owners have an interest in assets in excess of those needed to meet creditor's claims. There are two types of information contained in owner's equity. They are:

a. Contributed capital - The investment of the owners in the firm or entity. The owner's stock in the firm.

b. Retained earnings - They "represent the earnings realized by a firm since its formulation in excess of dividends distributed to shareholders."[Reference 4, pg. 65] They are the funds or earnings reinvested in the firm to benefit the shareholders.

A subject that must be understood is the dual effects of transactions on bookkeeping entries. Each transaction has a dual effect when being recorded in both the general journal and the general ledger. These bookkeeping entries are known as **double entry recording**. For example: The entity purchases a good with cash. The cash account is credited and the inventory account is debited. This is recorded in the general journal and transferred to the general ledger. The general ledger is used to produce the balance sheet at the end of the fiscal year. {See Figure A-2}

In summary, the balance sheet is snapshot at one point in time of an entities' permanent assets, liabilities and stockholder's equity accounts. Figure A-3 is an example of a corporation's balance sheet.

Income Statement

"The income statement provides a measure of the operating performance of a firm for some particular period of time."[Reference 3, pg. 74] This statement displays the net income or profits of a firm or entity over a period of time, usually one fiscal year. The income statement is comprised of total revenues and expenses. It is generated using the following equation:

NET INCOME = REVENUES - EXPENSES

A revenue is "the increase in owner's equity resulting from operations during a period of time."[Reference 1, pg. 44] Revenues measure the of inflow of assets. Revenues can be generated from the sale of assets or the reduction in liabilities. An expense is "a decrease in equities resulting from operations during an accounting period; that is, resources used or consumed during an accounting period."[Reference 1, pg. 41] Expenses measure the outflow of assets. Expenses can be generated by using assets to generate revenue or increases in liabilities. There are two approaches that can be used when recognizing revenues and expenses and in turn matching revenues with expenses. They are:

1) Cash basis: "Revenues from selling goods and providing services are recognized in the period when cash is received from customers."[Reference 3, pp. 75-77] "It records only cash receipts and payments."[Reference 1, pg. 40] This form of accounting is not usually accepted.

2) Accrual basis: "Recognizes revenues when goods are sold or services are rendered. Costs incurred are reported as expenses in the period when the revenues that the costs helped produce are recognized. Thus accrual accounting attempts to match expenses with associated revenues."[Reference 3, pg. 78] Accrual base accounting is normal accounting practice.

In summary, the income statement is "a statement of revenues and expenses, and the difference between them, for an accounting period: a flow report."[Reference 1, pg. 41] Figure A-4 is an example of a corporation's income statement. Also, the income statement and balance sheet are linked at the beginning and end of the fiscal year.

STATEMENT OF CASH FLOWS

Before addressing this statement working capital must be defined. Working capital (WC) is defined as "current assets (CA) minus current liabilities (CL)."[Reference 1, pg. 44] Or:

WC = CA - CL [Reference 2, pg.]

Therefore, the statement of cash flows "explains the changes in working capital balances during a period."[Reference 1, pg. 40] "The statement of cash flows reports the impact of a firm's operating, investing and financing activities on cash flows during a period of time."[Reference 3, pg. 162] The three activities tie together the balance sheet, income statement and statement of cash flows. {See Figure A-5} The three activities, operating, investing and financing are described in the following paragraphs.

An overview of the three activities is described in Figure A-6.

1) Operations - "Cash flow from operations indicates the extent to which operating activities have generated more cash than has been used."[Reference 3, pg. 164] Operations is comprised of cash received from sales of goods and services minus cash paid for operating goods and services.

2) Investing - "The acquisition of noncurrent assets, particularly property, plant, and equipment represent a major ongoing use of cash."[Reference 3, pg. 165] Investment is comprised of cash received from sales of investments and property, plant and equipment minus cash paid for acquisition of investments and property, plant and equipment.

3) Financing - "A firm obtains cash from short- and long-term borrowing and from issues of capital stock. Cash is used to pay dividends to shareholders, to repay short- or long- term borrowing, and to reacquire shares of outstanding capital stock."[Reference 3, pg. 165] Financing is composed of cash received from issue of debt or capital minus cash paid for dividends and reacquisition of debt or capital stock. " T h e statement of cash flows provides information that may be used in assessing the impact of operations on liquidity and assessing the relations among cash flows from operations, investing and financing activities."[Reference 3, pg. 166]

In summary, the statement of cash flows {See Fig. A-7} contains the following sources of cash [Reference 2, pg. 767]:

1) Any increase in a liability or equity account. Borrowing

from a bank is an example of a source of funds.

2) Any decrease in an asset account. Selling some fixed assets or reducing inventories are examples of sources.

It also contains uses of cash [Reference 2, pg. 767]:

1) Any decrease in a liability or equity account. An example is paying off a loan.

2) Any increase in an asset account. Some examples are buying assets or building inventories. It describes the flow of cash through the entity for a certain period of time.

LESSON 2 - MODULE A

COST ACCOUNTING

WHAT IS COST ACCOUNTING?

Cost accounting is by definition, "a sub-field of accounting that records, measures and reports information about costs".[Reference 5, pg. 3] A cost is a sacrifice of resources - cash, a promise to pay, or the expiration of the value of an asset. "Cost accounting provides information for internal uses (managerial accounting) and external uses (financial accounting)."[Reference 9, pg. 8]

PRINCIPLES OF COST ACCOUNTING

There are two primary principles of cost accounting. These principles focus on accumulating costs and allocating costs. The first principle to be discussed is cost accumulation.

A. **Cost accumulation.** All organizations take some type of input and transform it, by some process, into output. {See Figure A-8} In doing this various costs are incurred. Costs can be accumulated differently based upon the conversion process. Three different conversion processes [Reference 5, pg. 60] are:

1. **Merchandising** - Inventory is acquired in a finished form and then is marketed. There are various costs involved in the merchandising process such as:

   a. Acquisition costs

   b. Transportation costs

c. Marketing and administrative costs

An example of this process is described in Figure A-9 and the definitions of the terms listed above can be found in the Glossary.

2. **Manufacturing** - The process in which raw material is transformed into finished products. There are various costs involved in this process. These costs are reflected in the Work-In-Process account. The key costs in manufacturing are direct **labor**, **direct materials** and **factory overhead**. Conversion costs are "the labor and factory overhead costs of converting raw material into finished products."[Reference 1, pg. 40] There are different allocation bases and procedures for identifying and analyzing costs. The aforementioned cost flows are very important and use of the basic inventory formula is very helpful in analyzing cost effectiveness. The following is the basic inventory formula [Reference 5, pg. 69]:

Beginning Balance (BB)	+	Transfers In (TI)	=	Transfers Out (TO)	+	Ending Balance (EB)

Note - For an example of this process see Figure A-10.

3. **Services** - The process in which some organization's primary output results from the performance of some service. Some examples are performing legal, accounting, medical, etc., services. The cost flows are similar to that of manufacturing with the difference that no physical inventory exists. Most entities have some type of Work-in-Process account which reflects work performed

but not yet billed. An example of this process is described in Figure A-11.

B. **Cost allocation.** The second principle is cost allocation. Cost allocation is used primarily by manufacturing firms. The allocation of costs is a very difficult problem for many manufacturing companies. There are two types of costs: direct costs and indirect costs. Direct costs are costs that can be directly traced or attached to the cost center and do not have to be allocated.[Reference 9, pg. 66] Cost allocation is a proportional assignment of a indirect costs to cost objects.[Reference 5, pg. 93] Cost allocation is a managerial tool and can be used for a number of reasons for example, performance evaluations, long range planning and decision making, encouragement and control. Before considering allocation, indirect costs must be discussed. Indirect costs or common costs are costs that "serve two or more cost centers."[Reference 9, pg. 229] Examples of some typical allocation bases are described in Figure A-12.

There are two stages of cost allocation. {See Figure A-13} They are allocation of costs to responsibility centers and allocation of responsibility center costs to units.[Reference 5, pg. 96]

1. Allocate costs to responsibility centers. The basic steps in accomplishing the first stage of cost allocation are:

a. Identify the cost objects

b. Accumulate the indirect costs

c. Select an allocation base for the indirect cost

2. Allocate costs to units produced. The following are the basic steps in completing the second step:

a. Overhead is charged to Work-In-Process according to predetermined allocation base.

b. Costs and benefits should be considered when choosing an allocation base.

Cost accounting methods.

There are two methods that can be used in accounting for costs. They are job order costing and process costing.[Reference 5, pg. 131]

A. **Job order costing.** A method of accounting for costs when the product produced is "distinguishable and unique".[Reference 5, pg. 131] This method can also be defined as "accumulation of costs for a particular identifiable batch of product, known as a job, as it moves through production."[Reference 4, pg. 45] Job order costing should be utilized if the task being performed is to the customer's specifications or if the "company makes different components for inventory."[Reference 9, pg. 281] The following is a description of the process:

1. The accounting task in job costing is to measure the costs of producing each job.

2. It is used when units or batches of units are easily identifiable as separate units.

3. It is a method for accumulating costs. Specifically to:

a. Account for materials

1) Materials inventory

2) Indirect materials to Manufacturing Overhead

b. Account for labor

1) Use time cards

2) Indirect labor to Manufacturing Overhead

c. Account for Manufacturing Overhead

1) Other overhead items included

2) Actual overhead costs applied using some allocation base.

4. It is a method for identifying cost flows. Specifically, transfers to Finished Goods inventory and transfers to Cost of Goods Sold accounts.

**Note: Figure A-14 is an example of a manufacturing company's cost flows under job-order costing.

B. **Process costing.** A method for accounting for costs when the product produced is a "uniform, homogeneous output."[Reference 5, pg. 189] Process costing is by definition "a method of cost accounting based on average costs (total costs divided by the equivalent units of work done in a period).[Reference 4, pg. 58] Process costing is most appropriate "for companies mass producing goods using an assembly line in which there is a continuous flow of

goods." [Reference 9, pg. 281] The following is a brief description of the process:

1. An accounting system that is used when identical units are produced through an ongoing series of uniform production steps.

2. Costs are allocated by department and then allocated to units produced.

3. There many methods used such as:

   a. Unit costing. {See Figure A-15}

   b. Equivalent units.

   c. FIFO {First In First Out}. {See Figure A-16}

   d. Weighted Average. {See Figure A-17}

Job Order costing vs Process Costing.

There are distinct differences between job order and process costing. Figure A-18 describes the comparative flow of costs of job order and process costing which are summarized below.[Reference 9, pp. 281-282]

A. In job costing, costs are accumulated by department and job.

B. In process costing, costs are accumulated only by department and then averaged over the units produced.

LESSON 3 - MODULE A

MANAGERIAL ACCOUNTING

WHAT IS MANAGERIAL ACCOUNTING?

"An accounting system designed to enhance the ability of management to do its job of decision making, planning and control." [Reference 5, pg. 11] Management has a need for information in order to effectively compete in whatever environment its organization is in. Managerial accounting is "the informal language of business"[Reference 7, pg. 4] and the management tool that provides the necessary cost information about the organization. The information it provides is used to perform cost analysis. The method of analysis is called variance analysis.

VARIANCE ANALYSIS.

When using variance analysis some standard - "a benchmark or norm" - is established in order to gage costs. This norm or goal is the standard cost. A standard cost is, "the anticipated cost of producing and/or selling a unit of output; it is a predetermined cost assigned to goods produced."[Reference 4, pg. 70] When analyzing costs one must understand the organization's cost structure or the proportion of variable, fixed and mixed costs. A variable cost is a cost that changes in direct proportion to changes in the level activity, for example volume, (see Figure A-19).[Reference 7, pg. 24] Some examples of variable costs are

described in Figure A-20. A fixed cost remains unchanged with respect to changes in levels of activity within a specific range, (see Figure A-21).[Reference 7, pp.24-25] Some examples of fixed costs are contained in Figure A-22. Mixed costs or "semivariable costs are costs that contain both variable and fixed cost elements."[Reference 7, pg. 25]] A description of these costs with examples are contained in Figure A-23. The following are sources of the aforementioned costs.

VARIANCES.

When performing a cost analysis, all areas must be investigated. There is a total cost variance for manufacturing.[Reference 5, pp. 749-750] A general model for analyzing cost variance is described in Figure A-24. The following are definitions of the two sources of manufacturing cost variances:

A. **Price Variance**: "A difference between actual costs and budgeted costs arising from changes in the cost of material inputs to a production process or other activity".[Reference 5, pg. 750]

B. **Efficiency Variance**: "A difference between budgeted and actual results arising from differences between inputs that were expected per unit of output and the inputs that were actually used".[Reference 5, pg. 750]

COST ANALYSIS PERFORMANCE.

The aforementioned variances can be further broken down into the three areas which are summarized in Figure A-25. These areas are further defined below.[Reference 5, pp. 751-757]

A. Direct materials.

1. Price variance: Caused by failure to take purchase discounts, higher than expected transportation costs and changes in the market price of direct materials.

2. Efficiency variance: Usually caused by allowances made for defective direct materials, poor workmanship and poor supervision.

B. Direct labor.

1. Labor price variance: Caused by the difference between actual and standard labor costs per hour.

2. Labor efficiency variance: "A difference between budgeted and actual results which are a measure of labor productivity". This factor is watched very closely by production managers.

C. Variable manufacturing overhead.

1. Price variance: Caused by either actual costs being different than those expected (supplies, indirect labor,etc.) or "the relationship between the variable manufacturing overhead costs and the independent variable (direct labor hours) is not perfectly correlated".

2. Efficiency variance: Caused by inefficiency in using the base on which variable overhead is applied.

FIXED MANUFACTURING COSTS.

These costs are treated separately from the variable cost variances because there is no input-output relationship.[Reference 5. pp. 757-761] They are:

A. Price variance: "The difference between the flexible budget and the actual fixed overhead is caused by the changes in costs that make up fixed overhead".[Reference 5, pg. 757]

B. **Production volume variance:** When units produced are not equal to units budgeted and fixed costs are utilized, then the variance is a result of the difference between the budget amount and applied amount.

MANAGERIAL VS FINANCIAL ACCOUNTING.

There are several differences as well as similarities between managerial and financial accounting. The following are some differences [Reference 7, pg. 2]:

A. Managerial accounting focuses on providing cost data for internal use by management.

B. Managerial accounting places more emphasis on the future.

C. Managerial accounting emphasizes flexibility and relevance.

D. Managerial accounting emphasizes segmentation of the organization while financial accounting focuses on the organization as a whole.

Some similarities are:

1. They both use the same accounting information.

2. They both rely on the concept of stewardship and responsibility.

MODULE A - ACCOUNTING

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ASSETS, LIABILITIES & EQUITY RELATIONSHIPS

ASSETS = LIABILITIES + OWNERS' EQUITY

ASSETS = LIABILITIES + CONTRIBUTED CAPITAL + RETAINED EARNINGS

ASSETS = LIABILITIES + CONTRIBUTED CAPITAL + R/E + NET INCOME - DIVIDENDS

FIG. A-1

T-ACCOUNTS

ASSETS ACCOUNTS

OPENING BALANCE (Any increase)	(Any decrease)
Debit (DR.)	Credit (CR.)
ENDING BALANCE	

LIABILITY ACCOUNTS

	OPENING BALANCE
(Any decrease)	(Any increase)
DR.	CR.
	ENDING BALANCE

OWNERS' EQUITY ACCOUNTS

	OPENING BALANCE
(Any decrease)	(Any increase)
DR.	CR.
	ENDING BALANCE

FIG. A-2

ANY COMPANY

BALANCE SHEET

ASSETS

CURRENT ASSETS	$50,000	
Cash	10,000	
Accounts Receivable	20,000	
Total Current Assets		$ 80,000
FIXED ASSETS		
Plant & Equipment		100,000
TOTAL ASSETS		$180,000

LIABILITIES

CURRENT LIABILITIES		
Accounts Payable	$20,000	
Wages Payable	12,000	
Total Current Liabilities		$ 32,000
LONG-TERM LIABILITIES		
Mortgage Payable		50,000
Total Liabilities		$ 82,000

OWNERS' EQUITY

Common Stock	$ 20,000
Retained Earnings	78,000
Total Owners' Equity	$ 98,000
TOTAL LIABILITIES & OWNERS' EQUITY	$180,000

FIG. A-3

ANY COMPANY

INCOME STATEMENT
For Year Ending December 31, 199X

REVENUE		
Sales		$ 100,000
LESS COSTS		
Cost of Goods Sold	$ 30,000	
GROSS MARGIN		$ 70,000
LESS EXPENSES		
Administration Expense	$ 5,000	
Business Expense	2,000	
TOTAL EXPENSE		7,000
NET INCOME		$ 63,000

FIG. A-4

CASH FLOW INTERACTIONS

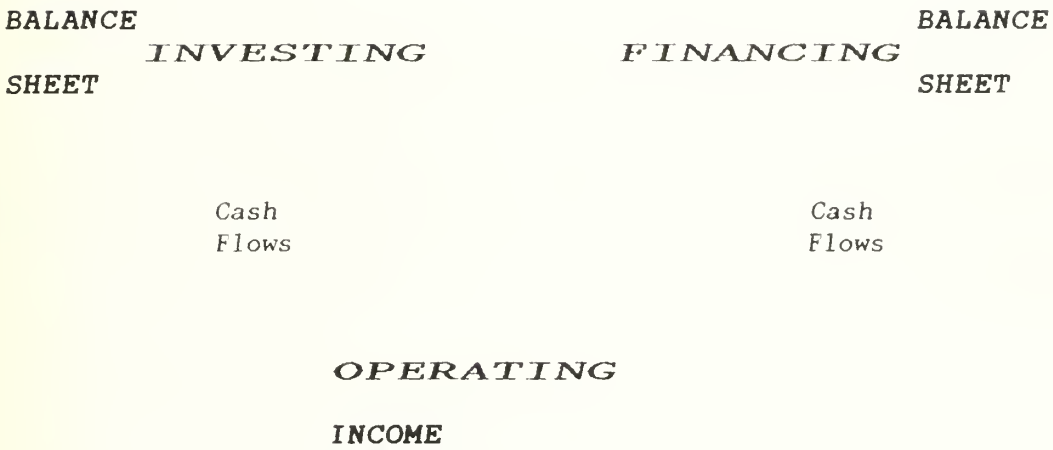


FIG. A-5

STATEMENT OF CASH FLOWS

COMPONENTS

OPERATIONS

CASH RECEIVED FROM SALES	(-)	CASH PAID FOR OPERATING GOODS	=	CASH FLOW FROM OPERATIONS

INVESTING

CASH RECEIVED FROM SALES OF INVESTMENTS/PP&E	(-)	CASH PAID FO ACQUISITION OF INVESTMENTS/PP&E	=	CASH FLOW FROM INVESTMENTS

FINANCING

CASH RECEIVED FROM ISSUE OF DEBT OR CAPITAL STOCK	(-)	CASH PAID FOR DIVIDENDS AND REACQUISITION OF DEBT OR CAPITAL STOCK	=	CASH FLOW FROM FINANCING

NET CHANGE IN CASH

CASH FLOW FROM OPERATIONS	(+ or -)	CASH FLOW FROM INVESTING	(+ or -)	CASH FLOW FROM FINANCING

FIG. A-6

ANYWHERE CORPORATION

STATEMENT OF CASH FLOWS
FOR YEAR 199X

OPERATIONS:		
Net Income	$ 30,000	
Additions:		
Depreciation expense not using cash	12,000	
Increased Accounts Payable	10,000	
To Suppliers of Merchandise	5,000	
To Other Suppliers	1,000	
Increased Salaries Payable	1,000	
Subtractions:		
Increased Accounts Receivable	(45,000)	
Increased Inventory	(12,000)	
CASH FLOW FROM OPERATIONS		$ 2,000
INVESTING		
Acquisition of Buildings & Equipment		($100,000)
FINANCING		
Dividends Paid		(6,000)
Proceeds from Long-Term Bonds		120,000
CASH FLOW FROM FINANCING		$114,000
NET CHANGE IN CASH FOR YEAR		$16,000

FIG. A-7

INPUT TO OUTPUT TRANSFORMATION

MERCHANDISING

INPUTS	PROCESS	OUTPUTS
MERCHANDISE	MARKETING	GOODS
LABOR	GOODS	SOLD
CAPITAL		
OVERHEAD		

MANUFACTURING

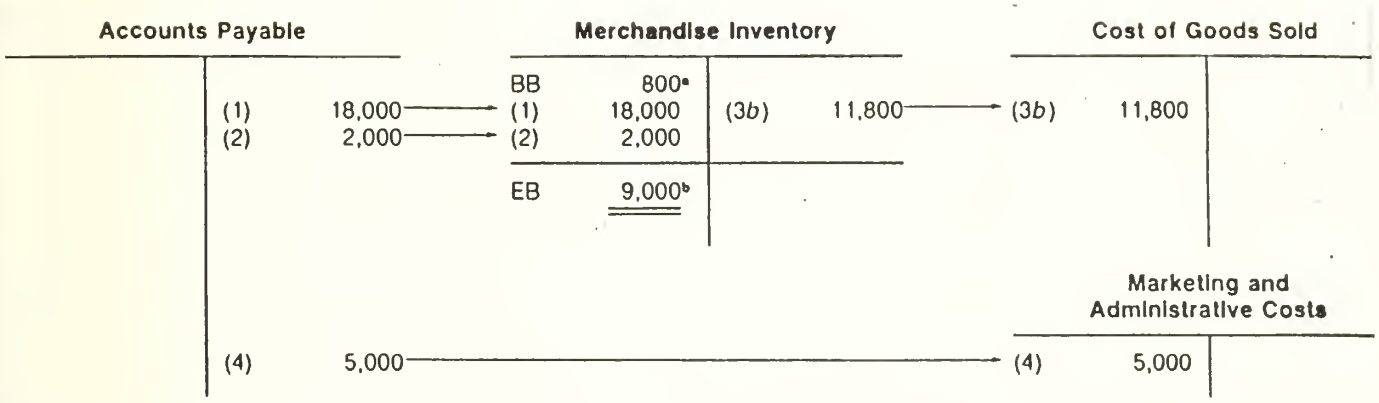
INPUTS	PROCESS	OUTPUTS
MATERIALS	CONVERTING	GOODS
LABOR	MATERIALS INTO	SOLD
CAPITAL	FINISHED GOODS	
OVERHEAD		

SERVICES

INPUTS	PROCESS	OUTPUTS
LABOR	PROVIDING	SERVICES
CAPITAL	SERVICES	SOLD
OVERHEAD		

FIG. A-8

MERCHANDISE CASH FLOW



Note: BB = Beginning balance, and EB = Ending balance.

a Beginning inventory consists of 100 units at $8 ($7 purchase price plus $1 transportation-in).

b Ending inventory consists of 900 units at $10 each.
The 900 units is equal to the 100 units in beginning inventory plus the 2,000 units purchased and less the 1,200 units sold.
The $10 price per unit is the $9 purchase price plus $1 transportation-in.

FIG. A-9

MANUFACTURING COST FLOWS

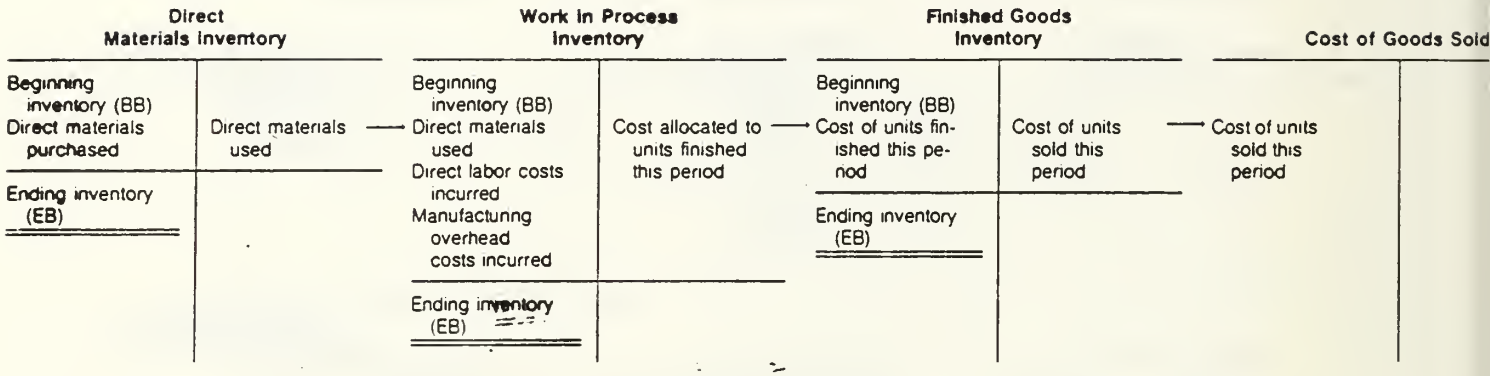


FIG. A-10

SERVICES

COST FLOWS

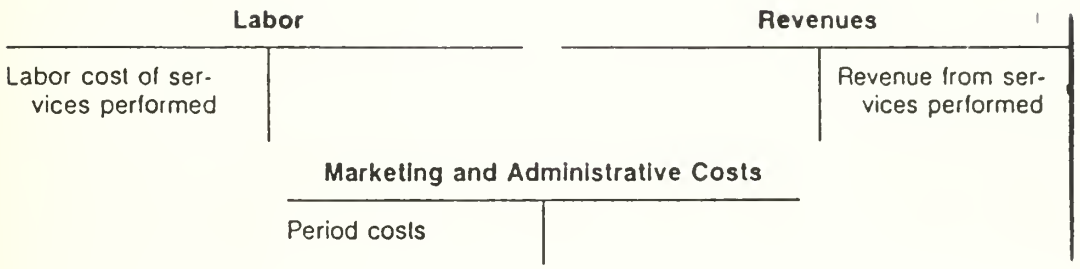


FIG. A-11

COMMON COSTS

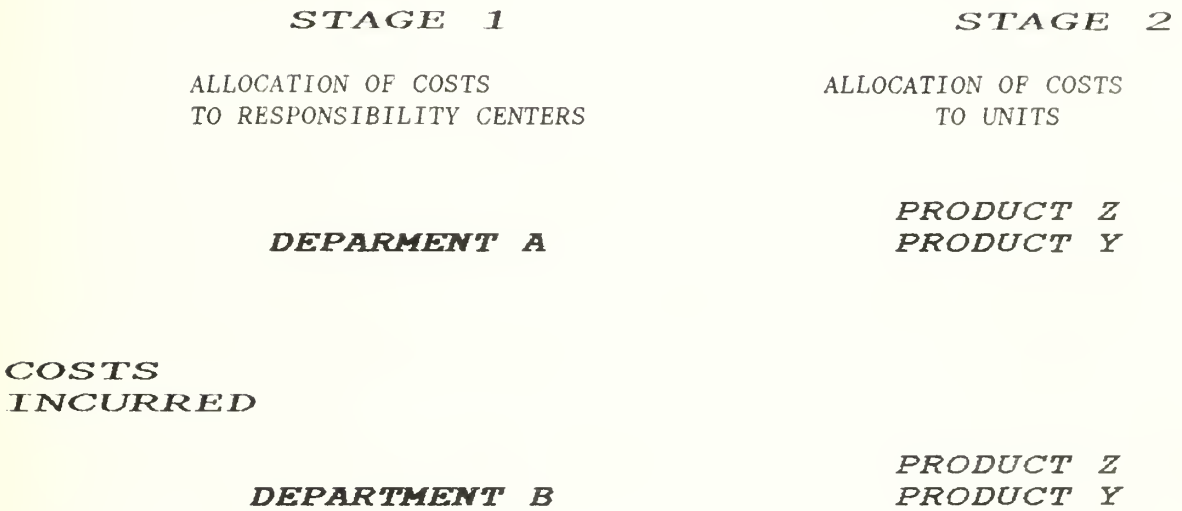
ALLOCATION BASES

	COMMON COST	ALLOCATION BASE
LABOR RELATED	Supervision	Number of Employees
		Payroll dollars
	Personal Services	Number of Employees
MACHINE RELATED	Equipment Depreciation	Machine-hours
	Equipment Maintenance	Number of machines
		Machine-hours
SPACE RELATED	Building Rental	Space occupied
	Building Insurance	Space occupied
	Heat & A/C	Volume occupied
	Interior Bldg Maintenance	Space occupied
SERVICE RELATED	Materials Handling	Quantity/Value of Matl.
	Indirect Materials	Value of Direct Matl.

FIG. A-12

COST ALLOCATION

STAGES



STAGE 1 : Allocates costs to Responsibility Centers.

STAGE 2 : Allocates Responsibility Center costs to units.

FIG. A-13

COST FLOWS IN A MANUFACTURING FIRM

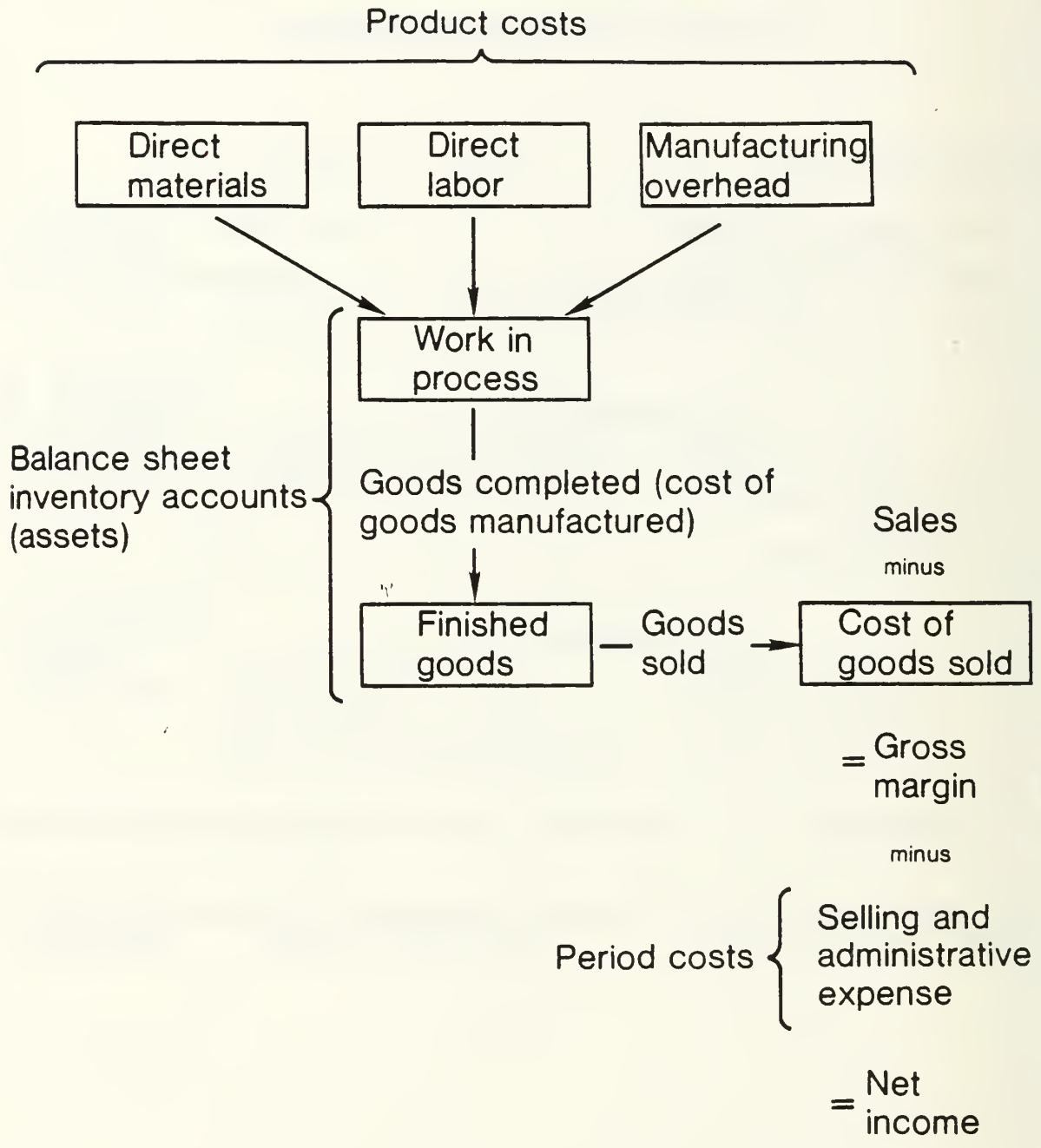


FIG. A-14

Process Costing Flows

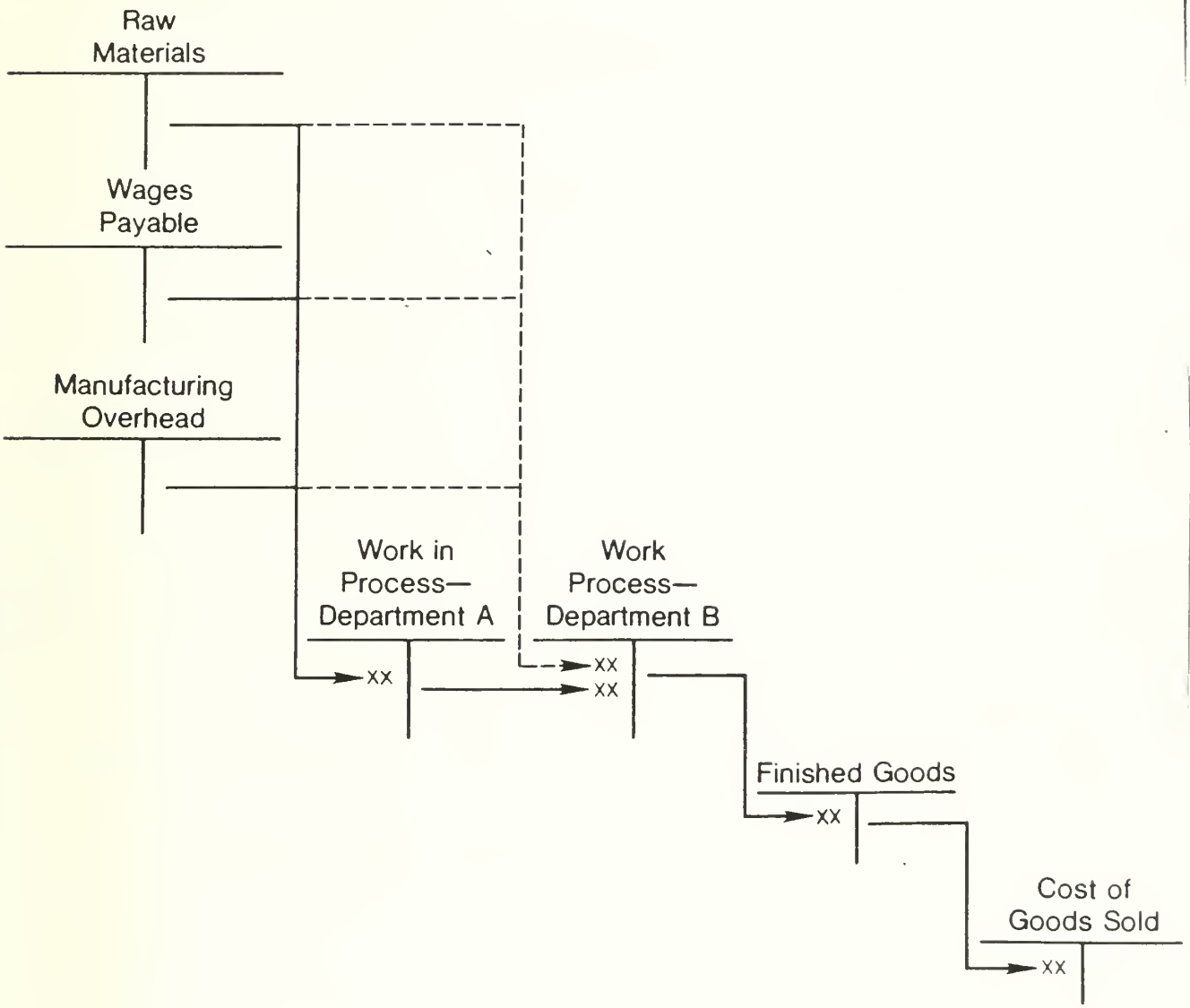


FIG. A-15

COST FLOWS

FIFO METHOD

ANYWHERE CORP.
MIXING OPERATION

WORK IN PROCESS (CONVERSION)

		Costs transferred out:	
Beginning Inventory	2000	Costs already in Beginning Inventory	2000
		Current period costs to complete beginning inventory	4100
Current period costs	30,000	Costs of units started and completed	10,000
Ending Inventory	15,000		

FINISHED GOODS INVENTORY

*16,100

***TOTAL COST TRANSFERRED OUT OF WORK IN PROCESS INVENTORY**

FIG. A-16

COST FLOWS

WEIGHTED AVERAGE METHOD

ANYWHERE CORP.
MIXING OPERATION

WORK IN PROCESS (DIRECT MATERIALS)

Beginning Inventory	1500	Cost transferred out:	
	50,000		42,000
Current perid costs	48,500		
Ending Inventory	8,000		

WORK IN PROCESS (CONVERSION)

Beginning Inventory	2000	Cost transferred out:	
	*30,000		25,000
Current period costs	28,000		
Ending Inventory	5,000		

***TOTAL COSTS TO BE ACCOUNTED FOR.**

FIG. A-17

COST FLOWS IN A JOB-ORDER COSTING SYSTEM

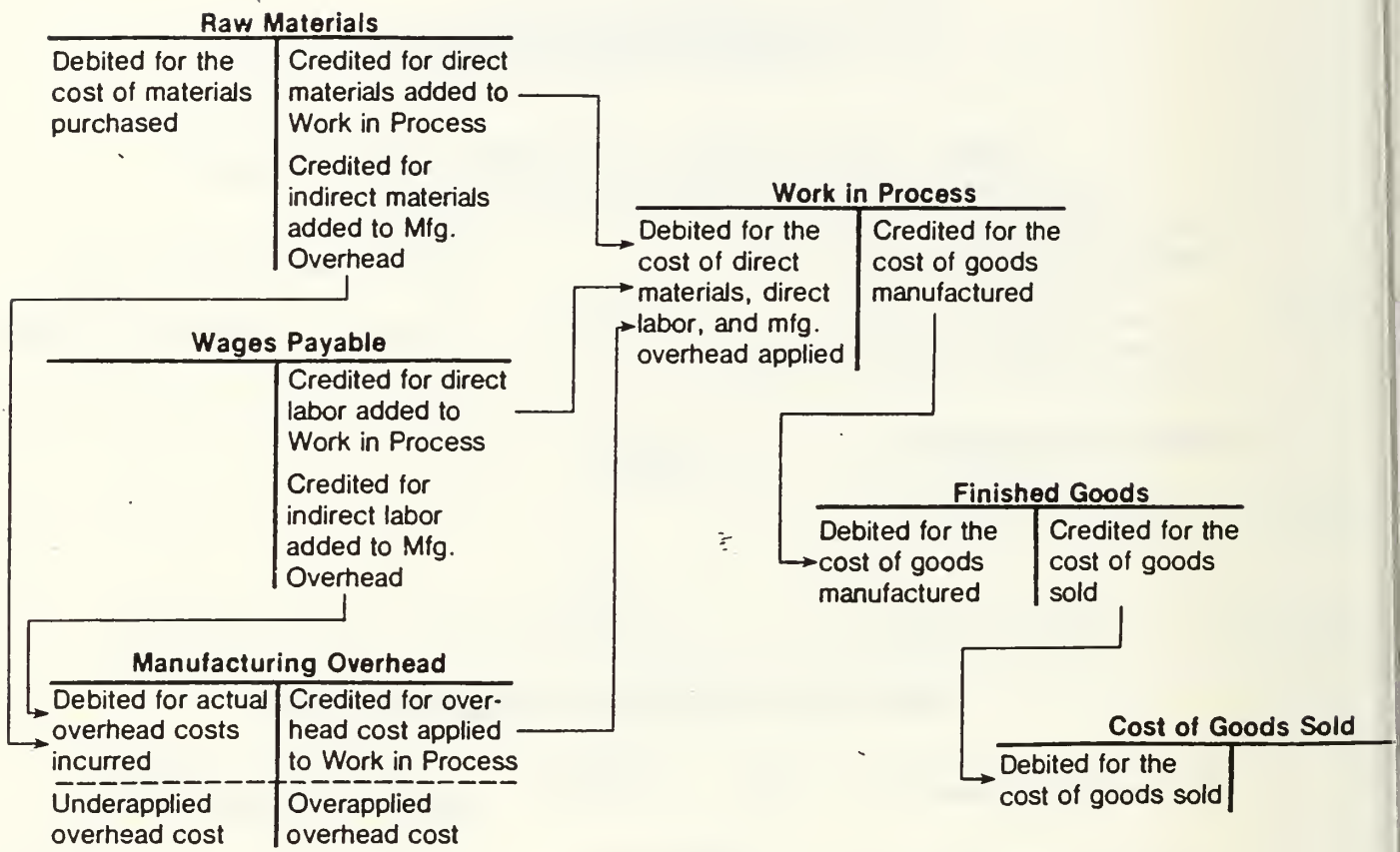


FIG. A-18

VARIABLE

COST PATTERNS

A VARIABLE COST CHANGES IN TOTAL IN DIRECT PROPORTION TO CHANGES IN THE LEVEL OF ACTIVITY.

A VARIABLE COST IS CONSTANT ON A PER-UNIT BASIS.

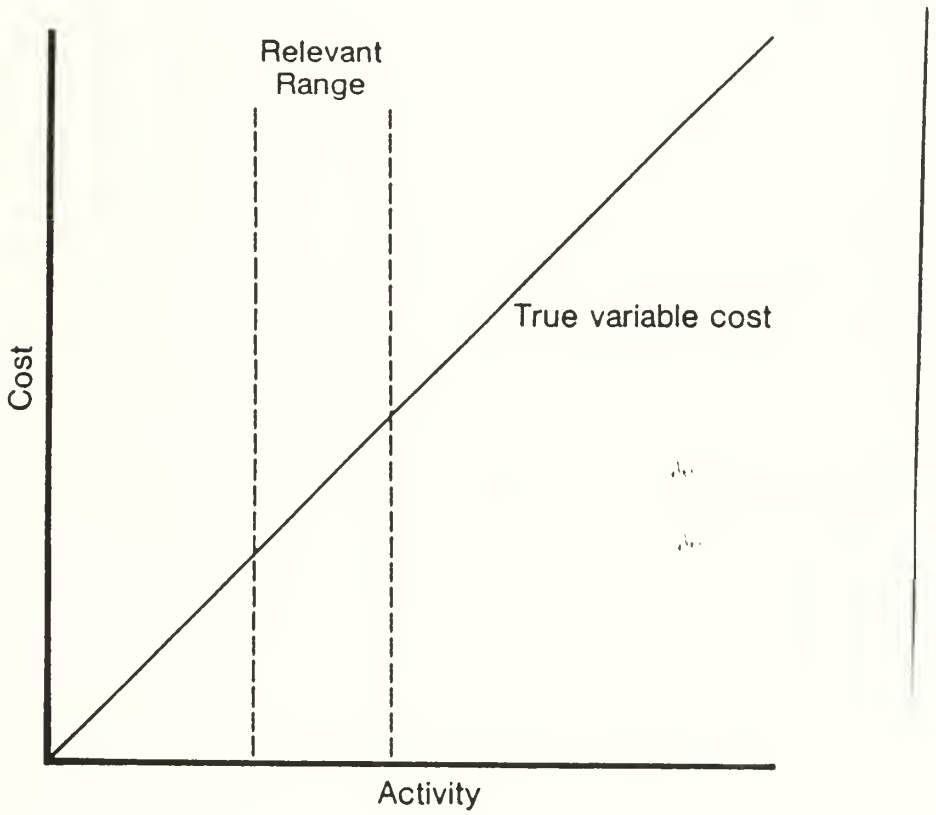


FIG. A-19

VARIABLE COST BEHAVIOR

THREE COST BEHAVIOR PATTERNS-VARIABLE COSTS, FIXED COSTS AND MIXED COSTS-ARE FOUND IN MOST ORGANIZATIONS. THE RELATIVE PROPORTION OF EACH TYPE OF COST IS KNOWN AS A FIRM'S COST STRUCTURE.

EXAMPLES OF VARIABLE COSTS

TYPE OF ORGANIZATION	VARIABLE COSTS
MERCHANDISING FIRM	COST OF GOODS SOLD
MANUFACTURING FIRM	MANUFACTURING COSTS: PRIME COSTS: Direct Materials Direct Labor VARIABLE PORTION OF MANUFACTURING OVERHEAD: Indirect Materials Supplies Utilities Indirect Labor
BOTH MERCHANDISING & MANUFACTURING FIRMS	SELLING AND ADMIN. COSTS: Commissions to Salespersons Clerical costs
SERVICE FIRMS	SUPPLIES TRAVEL CLERICAL

FIXED COST PATTERNS

A FIXED COST REMAINS CONSTANT IN TOTAL AMOUNT THROUGHOUT WIDE RANGES OF ACTIVITY. A FIXED COST VARIES INVERSLY WITH ACTIVITY IF EXPRESSED ON A PER UNIT BASIS.

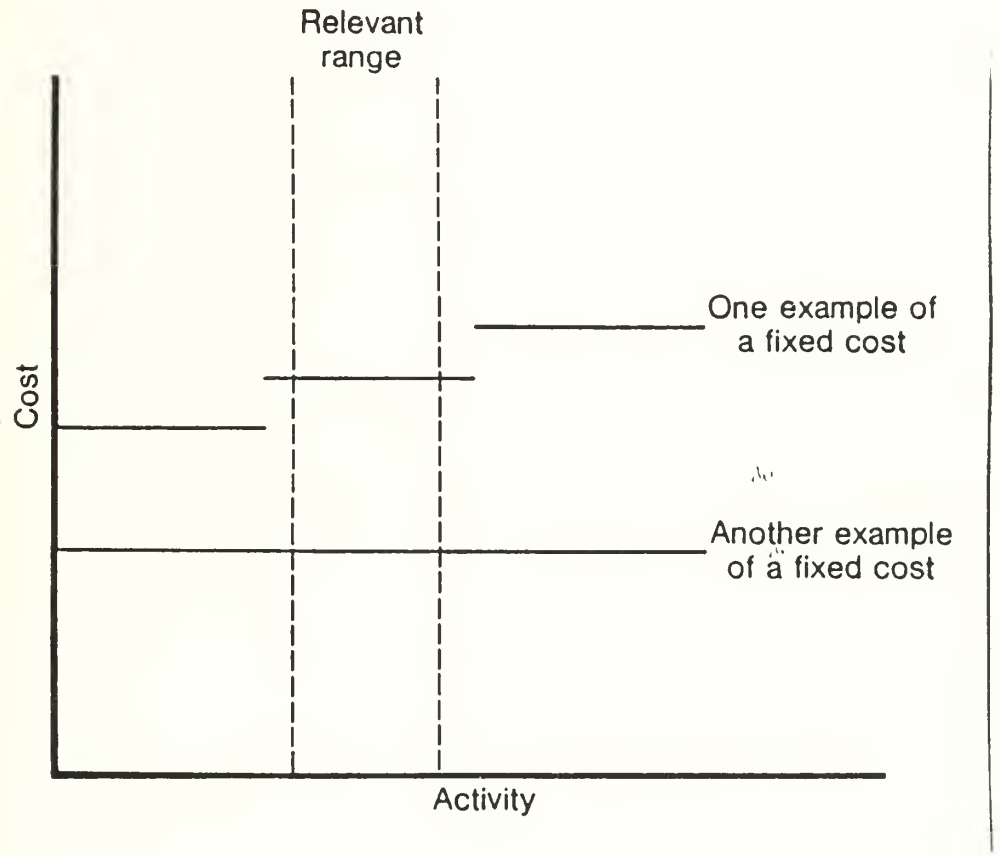


FIG. A-21

FIXED COST BEHAVIOR

COMMITTED FIXED COSTS.

THOSE COSTS THAT RELATE TO THE INVESTMENT IN PLANT, EQUIPMENT AND THE BASIC ORGANIZATIONAL STRUCTURE OF A FIRM.

EXAMPLES ARE:

Depreciation on plant facilities
Insurance
Taxes on Real Estate
Salaries of top management

COMMITTED FIXED COSTS ARE USUALLY:

1) LONG-TERM IN NATURE

2) CONTINUE EVEN IN TIMES OF ECONOMIC DIFFICUTY

DISCRETIONARY FIXED COSTS.

THOSE COSTS THAT ARISE FROM ANNUAL DECISIONS BY MANAGEMENT TO SPEND IN CERTAIN FIXED COST AREAS.

EXAMPLES ARE:

Advertising
Research & Development

MIXED COST BEHAVIOR

WHAT ARE MIXED COSTS?

A MIXED COST (OR SEMIVARIABLE) COST IS ONE THAT CONTAINS BOTH VARIABLE AND FIXED COST ELEMENTS.

EXAMPLES OF MIXED COSTS:

1) *ELECTRICITY*
2) *LEASE ARRANGEMENTS*
3) *MAINTENANCE*
4) *CLERICAL COSTS*

MIXED COST ANALYSIS

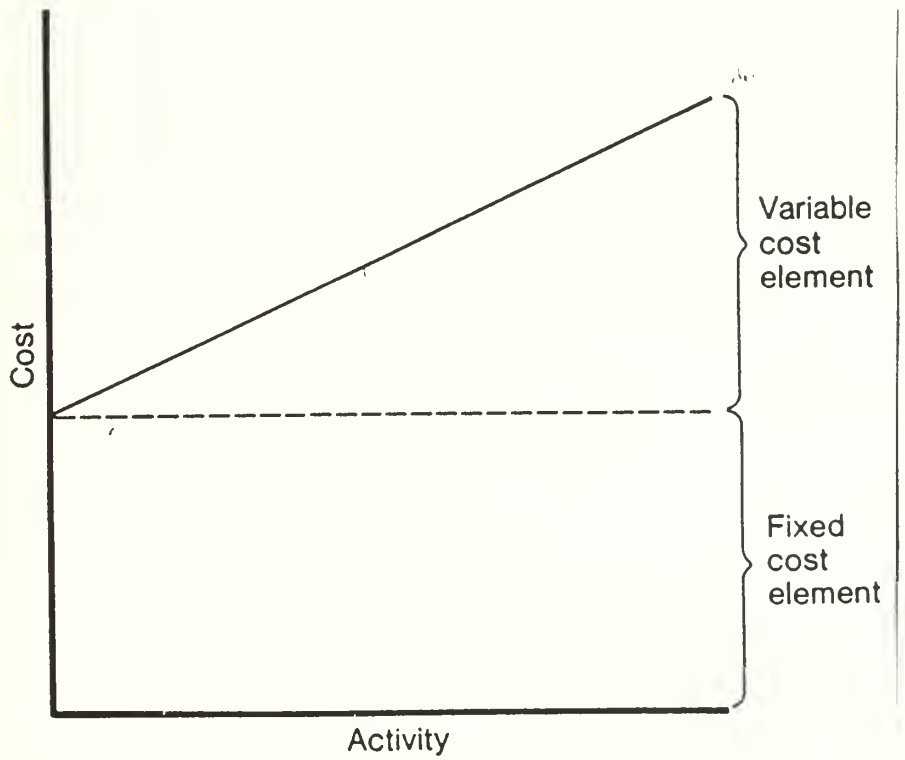


FIG. A-23

VARIABLE MANUFACTURING COST VARIANCES

ACTUAL	ACTUAL INPUTS AT STD. PRICE	FLEXIBLE BUDGET
Actual input price (AP) times actual quantity (AQ) of output	Standard price (SP) times actual quantity (AQ) of input	Standard input price (SP) times standard quantity (SQ) of input allowed for actual output
(AP x AQ)	(SP x AQ)	(SP x SQ)

Price Variance
(AP - SP) x AQ

Efficiency Variance
SP x (AQ - SQ)

Total Variance
(AP x AQ) - (SP x SQ)

FIG. A-24

COST VARIANCE

SUMMARY

INPUT	PRICE VARIANCE	EFFICIENCY VARIANCE
DIRECT MATERIALS	PRICE (OR PURCHASE PRICE VARIANCE	USAGE OR QUANTITY VARIANCE
DIRECT LABOR	RATE VARIANCE	EFFICIENCY VARIANCE
VARIABLE OVERHEAD	SPENDING VARIANCE	EFFICIENCY VARIANCE

FIG. A-25

GLOSSARY
MODULE A

Accounting: An information system conveying information about a specific entity. The information is in financial terms and is restricted to information that can be made reasonably precise.

Account Payable: A liability representing an amount owed to a creditor, usually arising from purchase of merchandise or materials and supplies. Normally a current liability.

Account Receivable: A claim against a debtor usually arising from sales or services rendered. Normally a current asset.

Accrual: Recognition of an expense (or revenue) and the related liability (or asset) that is caused by an accounting event, Frequently by the passage of time, and that is signaled by an explicit cash transaction.

Allocate: To spread a cost from one account to several accounts, to several products or activities, or to several periods.

Asset: Probable future economic benefits obtained or controlled by a particular entity as a result of past transactions.

Balance: The sum of debit entries minus the sum of credit entries in an account. If positive, the difference is called a debit balance; if negative, a credit balance.

Balance Sheet account: An account that can appear on a balance sheet. A permanent account; contrast with temporary account.

Cash: Currency and coins, negotiable checks and balances in bank accounts.

Capitalize: To record an expenditure that may benefit a future period as an asset rather than treat the expenditure as an expense of the period of its occurrence.

Cash Flow: Cash receipts minus disbursements from a given asset, or group of assets, for a given period.

Cash Flow Statement: A statement where the flows of cash, rather than working capital are explained.

Common Cost: Cost resulting from the use of raw materials, a facility or a service that benefits several products or departments and must be allocated to those products or departments.

Common Shares: Shares representing the class of owners who have residual claims on the assets and earnings of a corporation after all debt and preferred shareholders' claims have been met.

Consistency: Treatment of like transactions in the same way in consecutive periods so that financial statement will be more comparable than otherwise.

Contributed Capital: The sum of the balances in capital stock accounts plus capital contributed in excess of par (or stated) value accounts.

Control System: A device for ensuring that actions are carried out according to plan or for safeguarding assets.

Cost: The sacrifice, measured by the price paid or required to be paid, to acquire goods or services.

Cost Allocation: Assigning costs to individual products or time periods.

Cost Center: A unit of activity for which expenditures and expenses are accumulated.

Cost Flows: Costs passing through various classifications within an entity.

Cost Objective: Any activity for which a separate measurement of costs is desired.

Cost of Capital: Opportunity cost of funds invested in a business.

Cost of Goods Sold: Inventoriable costs that are expensed because the units are sold; equals beginning inventory plus cost of goods purchased or manufactured minus ending inventory.

Credit: As a noun, an entry on the right-hand side of an account. As a verb, to make an entry on the right-hand side of an account.

Current Asset: Cash and other assets that are expected to be turned into cash, sold or exchanged within the normal operating cycle of the firm, usually one year.

Current Cost: Cost stated in terms of current values rather than in terms of acquisition cost.

Debit: As a noun, an entry on the left-hand side of an account. As a verb, to make an entry on the left-hand side of an account.

Debt: An amount owed. The general name for notes, bonds, mortgages and the like that are evidence of amounts owed and have definite payment dates.

Deferral: The accounting process concerned with past cash receipts and payments.

Deficit: A debit balance in the Retained Earnings account.

Depreciation: The process of allocating the cost of an assets to the periods of benefit - the depreciable life.

Direct Cost: Cost of direct material and direct labor incurred in producing a product.

Direct Costing: This method of allocating costs assigns only variable manufacturing costs to product and treats fixed manufacturing costs as period expenses.

Direct Labor: Cost of labor applied and assigned directly to a product.

Direct Material: Cost of material applied and assigned directly to a product.

Efficiency Variance: A term used for the quantity variance for labor or variable overhead in a standard cost system.

Ending Inventory: The cost of inventory on hand at the end of an accounting period, often called "closing inventory." The dollar amount of inventory to be carried to the subsequent period.

Entity: A person, partnership, corporation or other organization.

Equity: A claim to assets; a source of assets.

Equivalent Units: The number of units of completed output that would require the same costs as were actually incurred for production of completed and partially completed units during a period.

Expenditure: Payment of cash for goods or services received.

Expense: As a noun, a decrease in owner's equity caused by the using up of assets in producing revenue or carrying out other activities that are part of the entity's operations. As a verb, to designate a past or current expenditure as a current expense.

Factory Overhead: Usually an item of manufacturing cost other than direct labor or direct materials.

Favorable Variance: An excess of actual revenues over expected revenues. An excess of standard cost over actual cost.

Feedback: The process of informing employees about how their actual performance compares with the expected or desired level of performance in the hope that the information will reinforce desired behavior and reduce unproductive behavior.

FIFO: First in, first out; the inventory flow assumption by which ending inventory cost is computed from most recent purchases and cost of goods sold is computed from oldest purchases including beginning inventory.

Finance: As a verb, to supply with funds through the issue of stocks, bonds, notes, mortgages or through the retention of earnings.

Financial Accounting: The accounting for assets, equities, revenues and expenses of a business.

Finished Goods: Manufactured product ready for sale; a current asset (inventory) account.

Fiscal Year: A period of 12 consecutive months chosen by a business as the accounting period for annual reports.

Fixed Cost: An expenditure or expense that do not vary with activity levels.

Flexible Budget: Budget that projects receipts and expenditures as a function of activity levels.

Future Value: Value at specified future date of a sum increased at specified interest rate.

General Journal: The formal record where transactions, or summaries of similar transactions, are recorded in journal entry form as they occur.

General Ledger: The name for the formal ledger containing all of the financial statement accounts.

Goods: Items of merchandise, supplies, raw materials or finished goods.

Gross Margin: Net sales minus cost of goods sold.

Historical Cost: Acquisition cost; original cost; a sunk cost.

Income: Excess of revenues and gains over expenses and losses for a period; net income.

Income Statement: The statement of revenues, expenses, gains and losses for the period, ending with net income for the period.

Indirect Cost: Costs of production not easily associated with the production of specific goods and services; overhead costs.

Intangible Asset: A nonphysical, noncurrent right that gives a firm an exclusive or preferred position in the marketplace.

Interest: The charge or cost for using money; the earnings from lending money; expressed as a rate per period, usually 1 year, called the interest rate.

Internal Rate of Return: The discount rate that equates the net present value of a stream of cash outflows and inflows to zero.

Inventory: As a noun, the balance in an asset account such as raw materials, supplies, work in process and finished goods. As a verb, to calculate the cost of goods on hand at a given time or physically to count items on hand.

Investment: An expenditure to acquire property or other assets in order to produce revenue; the asset so acquired; hence a current expenditure made in anticipation of future income.

Job-order Costing: Accumulation of costs for a particular identifiable batch of product, known as a job, as it moves through production.

Journal: The place where transactions are recorded as they occur. The book of original entry.

Journal Entry: A recording in a journal, of equal debits and credits, with an explanation of the transaction, if necessary.

Journalize: To make an entry in a journal.

Labor Variance: The price (or rate) and quantity (or usage) variances for direct labor inputs in a standard cost system.

Ledger: A book of accounts. Book of final entry.

Liability: A probable future sacrifice of economic benefits arising from present obligations of a particular entity to transfer assets or to provide services to other entities in the future as a result of past transactions or events.

LIFO: Last in, first out. An inventory flow assumption where the cost of goods sold is the cost of the most recently acquired units and the ending inventory cost is computed from costs of the oldest units.

Liquid: Said of business with a substantial amount (the amount is unspecified) of working capital.

Long-term Asset: An a asset whose benefits are expected to be received over several years. A noncurrent asset; usually includes investments, plant assets and intangibles.

Long-term liability: Noncurrent liability.

Managerial Accounting: Reporting designed to enhance the ability of management to do its job of decision making, planning and control.

Manufacturing Cost: Cost of producing goods, usually in a factory.

Marginal Cost: The incremental cost or differential cost of the last unit added to production or the first unit subtracted from production.

Marginal Revenue: The increment in revenue from sale of one additional unit of product.

Marketable Equity Securities: Marketable securities representing owners' equity interest in other companies, rather than loans to them.

Marketable Securities: Stocks and bonds of other companies held that can be readily sold on stock exchanges or over-the-counter markets and that the company plans to sell as cash needed. Classified as current assets and as part of working capital.

Merchandise: Finished goods bought by a retailer or wholesaler for resale.

Merchandising Business: As opposed to a manufacturing or service business, one that purchases (rather than manufactures) finished goods for resale.

Mortgage: A claim given by the borrower (mortgagor) to the lender (mortgagee) against the borrower's property in return for the loan.

Net Assets: Owner's equity; total assets minus total liabilities.

Net Book Value: Book value.

Net Current Assets: Working capital = current assets - current liabilities.

Net Income: The excess of all revenues and gains for a period over all expenses and losses of the period.

Net Loss: The excess of all expenses and losses for a period over all revenues and gains of the period.

Normal Costing: Method of charging costs to products using actual direct materials, actual direct labor and predetermined factory overhead rates.

Operating Accounts: Revenue, expense and production cost accounts.

Operations: Operating activities (producing and selling goods or services) are distinguished from financing activities (raising funds).

Opportunity Cost: The present value of the income (or costs) that could be earned (or saved) from using an assets in its best alternative use to the one being considered.

Organization Costs: The costs incurred in planning and establishing an entity.

Overapplied Overhead: An excess of costs applied, or charged, to product for a period over actual overhead costs during the period.

Overhead Rate: Standard, or other predetermined rate at which overhead costs are applied to products or to services.

Owners' Equity: Proprietorship; assets minus liabilities.

Payable: Unpaid but not necessarily due or past due.

Period Expense: Expenditure, usually based on the passage of time, charged to operations of the accounting period rather than capitalized as an asset.

Permanent Account: An account that appears on the balance sheet.

Plant Assets: Buildings, machinery, equipment, land and natural resources.

Post: To record entries in an account in a ledger; usually the entries are transferred from a journal.

Preferred Shares: Capital stock with a claim to income or assets after bondholders but before common shares.

Present Value: Value today of an amount or amounts to be paid or received later, discounted at some interest or discount rate.

Price: The quantity of one good or service, usually cash, asked in return for a unit of another good or service.

Price Variance: In accounting for standard costs (actual cost per unit - standard cost per unit) times quantity purchased.

Process Costing: A method of cost accounting based on average costs (total cost divided by the equivalent units of work done in a period). Typically used for assembly lines or for products that are produced in a series of steps that are more continuous than discrete.

Product Cost: Any manufacturing cost that can be inventoried.

Profit Center: A unit of activity for which both revenue and expenses are accumulated.

Quantity Variance: In standard cost systems, the standard price per unit times (actual quantity used minus standard quantity that should be used).

Rate Variance: Price variance, usually for direct labor costs.
Realize: To convert into funds.

Receipt: Acquisition of cash.

Receivable: Any collectible, whether or not it is currently due.

Report: Financial statement; auditor's report.

Responsibility Center: Part or segment of an organization that is accountable for a specified set of activities.

Retained Earnings: Net income over the life of a corporation less all dividends (including capitalization through stock dividends); owners' equity less contributed capital.

Revenue: The increase in owners' equity caused by a service rendered or the sale of goods. The monetary measure of a service rendered.

Sale: A revenue transaction where goods or services are delivered to a customer in return for cash or a contractual obligation to pay.

Services: Useful work done by a person, a machine or an organization.

Share: A unit of stock representing ownership in a corporation.

Shareholders' Equity: Proprietorship or owners' equity of a corporation.

Short-term: Current; ordinarily, due within 1 year.

Spending Variance: In standard cost systems, the difference between budgeted overhead (for a given production plan) and actual overhead costs incurred.

Standard Cost: Anticipated cost of producing a unit of output; a predetermined cost to be assigned to products produced.

Standard Cost System: Product costing using standard costs rather than actual costs. May be based on either absorption or direct costing principles.

Standard Price (rate): Unit price established for materials or labor used in standard cost systems.

Straight-line Depreciation: If the depreciable life is in n periods, then the periodic depreciation charge is 1/n of the depreciable cost. Results in equal periodic charges.

Sunk Costs: Costs incurred in the past that are not affected by and hence irrelevant for, current decisions, aside from income tax effects.

T-Account: Account form shaped like the letter "T" with the title

above the horizontal line. Debits are shown to the left of the vertical line, credits to the right.

Tax: A nonpenal, but compulsory, charge levied by a government on income, consumption, wealth or other basis for the benefit of all those governed.

Temporary Account: Account that does not appear on the balance sheet.

Trail Balance: A listing of account balances; all accounts with debit balances are totaled separately from accounts with credit balances. The two totals should equal.

Unadjusted Trail Balance: Trail balance before adjusting and closing entries are made at the end of the period.

Underapplied Overhead: An excess of actual overhead costs for a period over costs applied, or charged, to products produced during the period. A debit balance remaining in an overhead account after overhead is assigned to product.

Unfavorable Variance: In standard cost accounting, an excess of actual cost over standard cost assigned to product.

Unfunded: Not funded. An obligation or liability exists but no funds have been set aside to discharge the obligation or liability.

Usage Variance: Quantity variance.

Value: Monetary worth.

Value Variance: Price variance.

Variable Costing: Direct costing.

Variable Costs: Costs that change as activity levels change.

Variance: Difference between actual and standard costs or between budgeted and actual expenditures or, sometimes, expenses.

Variance Analysis: The investigation of the causes of variances in a standard cost system.

Volume Variance: Capacity variance.

Weighted Average: An average computed by counting each occurrence of each value, not merely a single occurrence of each value.

Weighted-average Inventory Method: Valuing either withdrawals or ending inventory at the weighted-average purchase price of all units on hand at the time of withdrawal or computing ending inventory.

Work-in-process: Partially completed product; an asset that is classified as inventory.

Working Capital: Current assets minus current liabilities. The statement of changes in financial position usually explains the changes in working capital for a period.

MODULE - B

PLANNING PROGRAMMING AND BUGETING (PPBS)

MODULE B PPBS, PLANNING, PROGRAMMING, AND BUDGETING

Index B-1

Overview of PPBS B-2

Learning Objectives. B-3

Lesson I Planning, Programming, and Budgeting System B-4

A. What is PPBS? B-4

B. Goals of PPBS. B-5

C. Phases of PPBS. B-5

Lesson II Planning B-7

Lesson III Programming B-9

Lesson IV Budgeting Phase B-11

References B-14

Glossary B-15

Article: "The A-B-Cs of PPBS"

Outline/Viewgraphs

MODULE B

(PPBS) OVERVIEW

This module discusses the Planning, Programming and Budgeting System (PPBS) followed by a brief introduction to each phase of the PPB system. It is preceded by a list of learning objectives that the student should be familiar with upon completion of the module and the associated class discussion. The focus of this module are the basics of PPBS.

MODULE E

LEARNING OBJECTIVES

1. Be able to explain what PPBS is.
2. Be able to describe the three central ideas behind PPBS.
3. Be able to explain the purpose of PPBS.
4. Be able to understand how the Planning, Programming, and Budgeting System (PPBS) works.
5. Be able to state the goals of the Planning, Programming, and Budgeting System (PPBS).
6. Be able to identify the three phases of PPBS.
7. Be able to describe the Planning phase of PPBS.
8. Be able to describe the Programming phase of PPBS.
9. Be able to describe the Budgeting phase of PPBS.

MODULE B, LESSON 1

PLANNING, PROGRAMMING, AND BUDGETING SYSTEM (PPBS)

A. PPBS.

The Planning, Programming, and Budgeting System (PPBS) coordinates planning efforts at the corporate level of the organization. It translates corporate goals developed by the organization into budgetary requirements.

The Planning, Programming, and Budgeting System (PPBS) coordinates planning efforts at the national level of the civilian and military organization. PPBS is principally concerned with the management of resources to meet strategic requirements. It translates organizational requirements developed within the firm into budgetary requirements for executing the organization's strategy. A key feature of PPBS is that it brings fiscal reality to the resource allocation process. It is simply a decision-making process for allocating scarce resources.

PPBS has three central ideas. First it is a formal programming system. Second, it uses a program budget in contrast to a line item budget. Third , it emphasizes benefit cost analysis. PPBS does not focus on existing programs and incremental improvements to them. Instead, its focus is more on objectives and purposes, and the long-term alternative means for achieving them. As a result of this emphasis, planning has been elevated to a level on par with budgetary

management and control. Additionally, the system brings together planning and budgeting by means of programming, a process which essentially defines a procedure for distributing available resources equitably among the many competing or possible programs.

The Planning, Programming, and Budgeting System (PPBS) process can be summarized in a few words. Based on the anticipated THREAT, a STRATEGY is developed. REQUIREMENTS of the strategy are then estimated and PROGRAMS are developed to package and execute the strategy. Finally, the costs of the approved programs are BUDGETED.

B. The GOALS of PPBS.

The goal of PPBS is to arrive at the most cost effective allocation of resources to accomplish the organizations overall objectives. As with most budgets, the primary problem is choosing among the alternative programs where to spend the limited funds available. PPBS allows for a means of extensive planning and priority setting activities. This in turn provides a basis upon which the required decisions on the nature of programs, their purpose, size and scope, can be determined.

C. PHASES OF PPBS.

The Planning, Programming and Budgeting System (PPBS) consists of three phases:

1. A **planning phase** where the global competition is assessed and a strategy to meet the competition is defined. Most of the planning functions are carried out by high level management in the organization or at corporate headquarters. The emphasis during this phase is ensuring that the organization's needs are provided for. The development of corporate planning guidance is the major consideration during this phase.

2. A **programming phase** which translates the strategic plans into programs defined in terms of forces, personnel, material, and dollars.

Following systematic procedures, every level of the corporate structure documents their needs years in advance and develops estimates on manpower and funding needs for the next six years. Upper management conducts a review of needs and estimates during this phase, evaluates current programs, and considers fiscal constraints for the first time. 3. A **budgeting phase** which expresses the programs in terms of biennial funding requirements. In the budgeting phase, program needs for the year(s) for which the budget is being developed are expressed by funds allocated by corporate headquarters. As it is being developed, the organization budget undergoes vigorous internal organizational and corporate review, analysis, justification, and revision.

MODULE B, LESSON 2

PLANNING

Planning, the first phase of the PPBS starts with the assessment of the threat or competition to the organization, and when combined with the corporate policy, culminates in the development of force objectives to assure the survivability and continue growth of the organization. The major steps in the planning process are:

1. Assess the current situation.
2. Determine corporate strategy and force levels.
3. Develop force planning guidance.

To assess the current situation requires the collection and evaluation of strategic intelligence (internal and external information). This is the foundation of PPBS. With this information, the current situation and the need for expansion may then be assessed. Assessing the current situation includes considering the competition, the corporate policy objectives, and to consider current corporate strategy.

Once the current situation has been fully assessed, the next planning step is to determine the corporate strategy and force levels needed to beat out the competition and ensure the corporate policy objectives will be achieved. This requires that idealized strategy and required force levels are developed, pragmatic resource constraints are applied, optimal force levels and strategy under these constraints are

developed, and that risk is assessed again so that force levels and strategy are adjusted accordingly.

The final planning step is to develop force planning guidance. The guidance which is developed during this stage will prepare the organization to develop programs that will lead to the achievement of corporate goals and objectives. The planning decisions which are documented in the form of guidance will serve as policy and resource direction for the programming phase.

MODULE B. LESSON 7

PROGRAMMING

In the programming phase, management decides on the size and nature of the programs that are to be undertaken in order to achieve an organization's goals. A program is a planned course of action that is intended to help the organization achieve its goals. It usually requires the commitment of a relatively large amount of resources, large enough to warrant the attention of senior management. Adoption of a program tends to have a sionificant effect on the activities of the organization. Also, execution of a program usually requires several years, and the program's impact often is not apparent until some time after it has been initiated.

There are two general types of decisions to be made about programs. First, there are the decisions on proposed new programs and second, there are the decisions about the continuation of ongoing programs. Considering new programs, management's primary concern is to ensure the program will accomplish the organization's objectives. Second, an estimate of the resources to be devoted to the program over the next several years is performed, followed by the benefits expected over the same time period. Finally a look at the risks and uncertainties associated with the program are discussed. For ongoing programs, management reviews and evaluates them in order to make a judgement about whether they should be

continued, redirected, or replaced by more effective and efficient programs.

There are essentially five steps that are followed in the programming process. The are initiation, screening, technical analysis, political analysis, and decision and selling. Initiation is the process in which a new idea originates from within the organization. It becomes part of the programming process only after it has attracted the favorable attention of an influential person within the organization. Screening is where criterion is used to ensure the proposal is consistent with the goals of the organization. To make the screening process effective, it is extremely important that the goals of the organization be fairly specific. Technical analysis, the next step, involves estimating the costs of a proposed program, quantifying its benefits, its feasibility, and assessing the alternatives. Another important decision on proposed programs involves the political ramifications which include the social and economic considerations as well as the environmental impact. Finally, the proposal must be acceptable to senior management to obtain the funding and resources so implementation can begin.

MODULE B. LESSON 4

BUDGETING

Budgeting is the final phase in the Planning, Programming, and Budgeting cycle. The budget expresses the financial requirements necessary to support approved programs which were developed during the preceding phases of planning and programming. It is through the budget that planning and programming are translated into annual funding requirements.

A budget is a plan for accomplishing an organization's objectives through management of its resources. It is an instrument of planning, decision making and management control. It is also a statement of policy stated in financial terms used to execute the objectives of the organization.

A budget is a planned program for a fiscal period in terms of estimated cost, obligations (commitments), expenditures, and financing. The budget is more important and more complicated than merely a plan for distributing dollars. It is a means of two-way communications between organizational cost centers and upper management. Starting at the lowest levels of responsibility, managers use the budget to communicate their operating plans and levels of activity for carrying out assigned tasks to the various department heads and chief executive officers. The budget also signals changes in objectives and procedures for implementing a cost center's portion of the organization's goals. Budget approval by

senior management communicates agreement (or disagreement) with the organization's plan. Additionally, internal allocation of approved budget figures for dollars and manpower communicates the chief executive officer's decisions on which functions will be carried out and to what degree.

Budget preparation includes an analysis and forecast of the level of activity which can be maintained subject to the dollar and personnel constraints which are specified in the budget call. Just as important as what can be done is the estimate of what cannot be done, and what the budget preparer should be accomplished in order to carry out the organization's goals. This is expressed in a prioritized list of unfunded requirements, which are submitted with full justification along with the budget.

Essential to effective budgeting is the principle that the lines of budget submission and approval must follow the lines of organizational responsibility. A significant advantage of having the budget prepared at the "working level" is the accuracy of information. It seems reasonable that those who must actually perform the tasks should be able to provide the best estimate of the amount of materials, manpower and other resources required to complete a task. It is at that level where better ideas on how to perform tasks might reside, or what functions can be eliminated of combined with others to provide a level of output more economically. The review process up the chain of command provides a system of

checks and balances on the initial recommendations, with the final decision being made by the Chief Executive Officer.

Another role of the budget is a measure of performance or effectiveness of the organization as a whole, of each cost center and sub-cost center, and a measure of performance of the responsible managers. Adequacy of the budget and comparison of actual performance with the budget can be a basis for employee evaluations, and the knowledge that superiors place a great deal of importance on both budget preparation and execution can motivate a better job in each area.

It is essential that the budget be dynamic and flexible as opposed to a mechanical submission of warmed-over previous year's figures if it is to be useful as a corporate plan. Goals and objectives change during the year, so tasks and resource allocations must change as well. The budget should be a current list of prioritized command objectives with current prices attached. A plan prepared in January may not be sufficient for the realities of June.

To summarize, a budget to be useful as a corporate plan must be a means of communication both up and down the chain of command with built-in feedback loops. It must follow lines of responsibility, and should complement management plans. It can be used as a measure of performance and must be dynamic and flexible.

MODULE B - PPBS

REFERENCES

Hitch, Charles J., Roland N. McKean. The Economics of Defense in the Nuclear Age. Atheneum, New York. 1986.

GLOSSARY
MODULE B

Budgeting: A plan for accomplishing an organization's objectives through the management of resources.

Planning: The process of developing organizational plans to meet the changing threat and/or competition.

Programming: The process of translating organizational plans into separate and identifiable programs.

PPBS: The planning, programming, and budgeting system. The process by which an organization's goals are translated into formal budgetary requirements.

MODULE - C

MANAGEMENT

MODULE - C
MANAGEMENT

- PLANNING
- ORGANIZING
- LEADING
- CONTROLLING

MODULE C - INDEX

MANAGEMENT FUNDEMENTALS

INDEX 1

OVERVIEW . . FOUR MANAGEMENT ACTIVITIES . 3

LEARNING OBJECTIVES (MODULE C) 4

LESSON 1 . . PLANNING 7

A. What is planning? 7

B. Four steps in planning 7

C. Types of plans 8

1. Strategic 9

2. Operational 9

D. Operational vs Strategic planning . . . 9

LESSON 2 . . ORGANIZING 12

A. What is organizing? 12

B. Organizational structures 12

C. Centralization vs Decentralization . . . 13

D. Organization process 14

E. Authority 15

LESSON 3 . . LEADING 17

A. What is leadership? 17

B. Leadership process 17

C. Leadership theories 18

D. What is motivation? 18

E. Motivation theories 18

F. Communication 19

G. Communication processes 20

LESSON 4 . . CONTROLLING 21

A. What are controls? 21

B. Control process 21

C. Importance of controls 22

D. Types of controls 22

E. Characteristics 23

REFERENCES 24

FIGURES VC-1

ADDITIONAL READINGS 25

MODULE C

MANAGEMENT

This module addresses the concepts of management and briefly describes the components of management. Each lesson will be preceded by a list of learning objectives that the student should be familiar with upon completion of the lesson and associated class discussions. At the end of each module an applicable case study will be assigned and discussed using the principles and knowledge gained from the lessons.

Management is "the process of planning, organizing, leading and controlling the work of organization members and of using all available organizational resources to reach stated organizational goals."[Reference 16, pg.3]

Management is comprised of four managerial activities. These are: planning, organizing, leading and controlling. These activities will be thoroughly discussed in the following lessons.

MODULE C

LEARNING OBJECTIVES

LESSON 1.

- Understand the definition of management.
- Be familiar with the four management activities.
- Know the definition of planning.
- Understand the four steps in the planning process.
- Be familiar with the two types of plans.
- Know the definition of strategic planning.
- Be familiar with the strategic planning school of thought.
- Understand the strategic management approach.
- Understand the strategic management process.
- Be familiar with the what strategic levels are.
- Know the definition of operational planning.
- Understand the two operational planning approaches.
- Understand the differences between strategic and operational planning.

LESSON 2.

- Know the definition of organizing.
- Be familiar with the two organizational structures.
- Understand the aspects of an organizational structure.
- Know what a formal organization is.
- Be familiar with the three kinds of formal organizations.
- Know what an informal organization is.

MODULE C

LEARNING OBJECTIVES (CONT.)

- Understand what centralized and decentralized organizations are and there differences.
- Understand the five steps in the organizational process.
- Know the definition of authority.
- Be familiar with the three forms of authority.

LESSON 3.

- Know the definition of leadership.
- Understand the leadership process.
- Be familiar with the five power bases.
- Know the common thread within the power bases.
- Be familiar with the two principle leadership theories.
- Understand the behavioral leadership approach and the factors that contribute it.
- Understand the situational leadership approach and the factors that contribute to it.
- Know what motivation is.
- Be familiar with the three motivation theories.
- Know what communication is.
- Be familiar with the eight elements that comprise the communication process.
- Understand the two communications processes.
- Be familiar with the barriers to communication.

MODULE C

LEARNING OBJECTIVES (CONT.)

LESSON 4.

- Know the definition of control.
- Understand the two prerequisites for any control system.
- Be familiar with the three elements of the control process.
- Understand the importance of controls.
- Be familiar with the needs for controls.
- Be familiar with the four control method groups.
- Know the nine control system characteristics.

MODULE C - LESSON 1

PLANNING

WHAT IS PLANNING?

Planning is "the process of establishing objectives and suitable courses of action".[Reference 16, pg.139] Plans are a decisions made by all levels of an organization. There are four steps associated with making planning decisions [Reference 16, pg 141]. {See Fig. C-1} They are:

A. **Establish goals.** Goals must be realistic, obtainable and justifiable.

B. **Define the present situation.** In order to begin a plan one must have a viable starting point. Therefore, the current position of the organization must be measured and used as a foundation for the plan. This is where financial reports come into play.

C. **Determine aids and barriers.** There are internal and external factors that may help or hinder the planning process. These factors must be identified and analyzed in order to determine there effect on the organization.

C. **Develop a set of actions.** Finally after evaluating the aforementioned steps a set of prioritized actions must be developed.

TYPES OF PLANS.

There are two types of plans that can be developed. They are:

A. Strategic. "The broad program for defining and achieving an organization's objectives; the organization's response to its environment over time."[Reference 16, pg. 193] There are many components that contribute to the strategic planning process. Many schools of thought exist that present different ways to develop, implement and manage an organizations strategy. The following ideas presented are most accepted schools of thought.

1. Policy formulation: "The concept of implementing day-to-day rules that puts boundaries around what a functional area can and cannot do."[Reference 16, pg.198]

2. Initial strategy: "The determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals."[Reference 3, pg. 16]

3. Strategic management: As developed by Charles Hofer and Dan Schendel this management approach is a "pattern based on the principle that the overall design of the organization can be described only if the attainment of objectives is added to policy and strategy as one of the key factors in management's operation of the organization's activities."[Reference 10, pg. 14] This management approach has five components. They are:

a. Establish organizational goals.

b. Forecasting of future environmental conditions.

c. Formulate the strategy.

d. Evaluate past strategy.

e. Implement the strategy.

4. Strategic management process: This process as developed by Kenneth Andrews and interpreted by Charles Hofer displays the steps in the formulation and implementation of strategy. There are nine steps in this process [Reference 10, pp. 14-16]. {See Fig. C-2}

a. Goal formulation - The first and most critical step in forming strategy. During this step the organization's mission and objectives are defined.

b. Identification of current objectives and strategies - The organization's objectives and strategies that currently exists must be identified. These may be similar to or very different from the new mission and objectives.

c. Environmental analysis - This step attempts to identify all external factors that may affect the organization in the future. This factors consist of economic, political, and technological conditions as well as competition, supply, and demand.

d. Resource analysis - The organization's competitive advantage in the market place must be forecast and any strengths and weaknesses should be identified. The focus of this step is to identify the organization's present strengths and weaknesses.

e. Identify strategic opportunities & threats - This step brings together steps two, three and four and focuses on the available opportunities to the organization. Also the threats that accompany these opportunities are addressed.

f. Performance gap analysis - Hofer defines this step as "the difference between the objectives established in the goal formulation process and the results likely to be achieved if the existing strategy is continued". This is an important step because it provides feedback about the success or failure of past performance to achieve expectations. If the objectives are not achievable then the performance gap is wide and visa versa.

g. Decision making - It is important to develop strategic alternatives in order to close a performance gap if it develops. The process is comprised of identifying, evaluating and selecting the alternatives.

h. Implementation - Once the strategy has gone through the aforementioned steps then the strategy should be implemented.

i. Measurement & control - This step is used to measure the progress and effectiveness of the strategy. It also provides current feedback on the success of the strategy.

e. Strategy Levels: Arthur Thompson and A.J. Strickland define three levels of strategy. [Reference 16, pp. 202-203] {See Fig. C-3} They are:

1) Corporate - Formulated by top management to

" oversee the interests and operations of the organization".

2) Business-unit - Developed to manage the operations and concerns of the particular business.

3) Functional-level - Developed to manage the departmental or divisional levels of an organization.

2. Operational - These plans provide details on how strategic plans will be accomplished and are developed by lower level managers. {See Fig. C-4} The two uses are:

a. Single-Use: "Detailed courses of action used once or only occasionally to solve problems that do not occur repeatedly."[Reference 16, pg. 146] An example is a plan used for specific project or program which will be accomplished once and in a short period of time. Another example is a budget.

b. Standing: "An established set of decisions used by management to deal with recurring or organizational activities; major types are policies, procedures or rules."[Reference 16, pg. 147] Some examples are a companies unique policies, procedures and rules.

3. Strategic vs Operational planning: Strategic planning focuses on the effectiveness of the organization to reach and achieve the goals and objectives of the organization. Operational planning focuses on the organization's ability to achieve the goals and objectives efficiently.

MODULE C - LESSON 2

ORGANIZATION

A. What is organizing?

The next step in the management process is the bringing together of manpower and resources into a viable structure that can achieve the strategic goals and objectives developed in the planning phase. This step is the organizing process. Organizing is, "the process of arranging an organization's structure and coordinating its managerial practices and the use of resources to achieve its goals."[Reference 16, pg. 264]

B. Organizational structure.

There are two primary organizational structures that exist in the world today. These structures will be discussed in the theoretical sense. James Stoner indicates that all of the organizational structures are comprised of the following aspects [Reference 16, pg. 265]:

- Division of work
- Managers and subordinates
- Type of work defined
- Group of work segments
- Levels of management

1. **Formal**: The most common form of an organization. There are three kinds of formal organizations - functional, product/market and matrix.

a. Functional - The most basic form of an organization. It is defined as, "a form of departmentalization in which everyone engaged in one functional activity, such as marketing or financial, is grouped into one unit."[Reference 16, pg. 267] {See Fig. C-5}

b. Product/Market - This organizational structure is most common in large, multiproduct companies. It is, "the organization of a company by divisions that bring together all those involved with a certain type of product or customer."[Reference 16, pg.268] {See Fig. C-6}

c. Matrix - This is a specialized organization that is utilized largely in specialized organizations that have difficulty in goods production. It is, "an organizational structure in which each employee reports to both a functional or division manager and to a project or group manager."[Reference 8, pg. 12]
{See Fig. C-7}

2. **Informal:** The unofficial organizational structure that exists within the formal organization and is formulated by interpersonal relationships between the organization's members. It is defined as, "the undocumented and officially unrecognized relationships between members of an organization that inevitably emerge out of the personal and group needs of employees."[Reference 16, pg.274]

D. Centralization vs Decentralization.

Within the formal organization structure, the concepts of

centralization and decentralization of authority and accountability exist. Centralization is, "the extent to which authority is concentrated at the top of the organization."[Reference 16, pg.321] Decentralization is, "the delegation of power and authority from higher to lower levels of the organization, often accomplished by the creation of small, self-contained organizational units."[Reference 6, pg.114]

The use of these concepts depend on the following four points [Reference 6, pp. 114-130]:

- The organization's strategy
- The organization's environment
- The size and growth rate of the organization
- The organization's characteristics

E. Process of organizing.

This is a five step process which focuses on identifying, detailing, coordinating, dividing and monitoring the work required to achieve both strategic and operational goals.[Reference 6, pg.9]

1. **Detailing** - All the work must be identified and efficiently detailed to achieve the organization's goals.

2. **Division** - The total work load must be identified and then divided into activities that can, "logically and comfortably be performed by one person or groups."

3. **Combining** - The process of assigning individuals or groups to similar jobs or tasks in order to achieve the

organization's goals or objectives.

4. Coordination - Establishment of a mechanism that bring the individuals or groups together into a "unified harmonious whole."

5. **Monitoring** - The process or mechanism that allows the organization to view the organization's effectiveness and allows the organization to adjust itself to increase overall effectiveness.

F. Authority.

In each organizational structure, authority must be defined and delineated throughout it. What is authority? "It is power rooted in the general understanding that specific individuals or groups have the right to exert influence within certain limits by virtue of their position within the organization."[Reference 16, pg.299] Authority can take on one of three forms. They are:

1. **Line** - By definition, "the authority of those managers directly responsible, throughout the organization's chain of command, for achieving organizational goals."[Reference 16, pg.307] {See Fig. C-8}

2. **Staff** - By definition, "the authority of those groups of individuals who provide line managers with advice and services."[Reference 15, pp. 148-150]

3. **Functional** - By definition, "the authority of staff-department members to control the activities of other departments

that are related to specific staff responsibilities."[Reference 16, pg.309] It is the right to control activities of other departments by staff. {See Fig. C-9}

It is very important to note that lines of authority be defined and utilized, within the organization's chain-of-command, in order for the organization to effectively achieve its goals and objectives.

MODULE C - LESSON 3

LEADING

A. What is leadership?

Leadership is influence, or the process of influencing people to accomplish a goal or objective. It is, "the process of directing and inspiring workers to perform the task-related activities of the group."[Reference 1, pg. 9] The key to leadership is the ability to guide and direct persons to achieve the organization's goals and objectives. The leadership process will be addressed next.

B. Leadership process.

The process of leadership must involve subordinates. Leaders must have people to lead. It is important to involve the subordinates in the decision-making process. The leader must use his influence and power-base to ensure his or her subordinates are involved. What is a power-base? There are five power-bases [Reference 8, pp.150-167]:

1. **Reward power** - This power results from the leader's ability to reward a subordinate for carrying out orders.

2. **Coercive power** - This power-base concerns the leader's ability to punish a subordinate for not carrying out orders. This the reverse of reward power.

3. **Legitimate power** - This is a leader's formal authority. The subordinate acknowledges the leader's lawful right to exert influence within certain bounds.

4. **Expert power** - This is the leader's perceived technical ability that is recognizable by the subordinate and affects his ability to influence the subordinate.

5. **Referent power** - This power evolves from the subordinates desire to identify with the leader.

Each of these different power-bases have one common thread woven through them and that thread is influence. The leader uses his ability to influence his subordinates to accomplish his or her desire. The level of influence the leader achieves determines the power-base he or she might use.

C. Leadership theories.

There are various views on leadership development and the characteristics of a leader. Many studies have centered on the aforementioned subjects in order to develop measurable leadership traits. These studies have failed because not all leaders possess all traits and many non-leaders possess most or all of them. There are, however, two schools of thought that will be discussed. They are:

1. **Behavioral approach**: Because leaders did not have common traits, some people attempted to isolate certain characteristics of behavior. Robert F. Bales' studies focused on two aspects of leadership behaviors which were leadership functions

and leadership styles.[Reference 2]

a. Functions - A leaders must perform certain functions within the group in order for the group to succeed. He or she must perform either a task-related function or a social function.

b. Styles - Some early research on this subject indicated that leadership styles were explained by the leader's authority. Three basic styles were seen which were autocratic, democratic and "free reign." But Robert Tannenbaum and Warren Schmidt developed the concept that a leader is influenced by forces around him or her.[Reference 17, pp.162-164] The forces are:

1) Forces in the manager
2) Forces in the subordinates
3) Forces in the situation

2. **Situational approach**: This approach supports the theory that people tend to follow a leader they think can help them accomplish the organization's goals and objectives. F. E. Fielder developed the concept of situational leadership. Fielder's research indicates "people become leaders not only because of the attributes of their personality but also because of various situational factors and the interaction between the leaders and the situation."[Reference 7, pg. 116] Fielder found there are three critical dimensions of the leadership situation which are:

a. Position power
b. Task structure

c. Leader-member relations

Using the aforementioned approach, two leadership styles are postulated. These are "task-oriented" leadership and "leader-member related" leadership. Both the behavioral and situational leadership approaches have one common thread which is motivation.

D. What is motivation?

George A. Stiener defines the term as "an inner state that energizes, activates, or moves (hence 'motivation'), and that directs or channels behavior towards goals."[Reference 14, pg. 148] Motivation is comprised of the factors that cause, channel and sustain an individual's behavior.

E. Motivation theories.

There are three theories of motivation that will be addressed. They are:

1. **Content** - Various names have been associated with this theory such as Maslow, McGregor, Hertzberg and McClelland. The context of the theory revolves around the factors that cause a person to act in a certain way. The four factors that contribute to this theory are: need, drive, actions and satisfaction. Basically a person's "need" creates a "drive" or desire to fill the need and this drive creates the "action" to achieve the goal. Once the goal or "need" is achieved the person feels "satisfaction."[Reference 16, pg.429]

2. **Process** - This theory emphasizes an individual's goals. The basic point of this theory focuses on an individual's expectancy or what will occur "as a result of his or her behavior." This theory also considers a persons preference for an expected outcome.[Reference 16, pg.430]

3. **Reinforcement** - This theory, developed by researchers like B. F. Skinner, is also called behavior modification. It states "managers can change behavior by changing the consequences of that behavior."[Reference 16, pg.430]

F. Communication.

C. I. Bernard viewed communication as the means by which people are linked together in an organization in order to achieve a common purpose. Communication is the critical means by which a organization is unified. There are eight elements that comprise the communication process.[Reference 11, pp.125-136] {See Fig. C-10} They are:

1. **Sender** - The source or initiator of a message of information.

2. **Encoding** - The translation of the information into a series of symbols for communication.

3. **Message** - The physical form encoded by the sender forwarded to the receiver.

4. **Channel** - The method of transmission or medium of communication between the sender and receiver.

5. **Receiver** - The individual(s) whose senses perceive the sender's message.

6. **Decoding** - The process by which the receiver translates and interprets the sender's information.

7. **Noise** - This is anything that contributes to diminish, confuse, disturb or interferes with the communication process.

8. **Feedback** - The process by which the receiver expresses his or her reaction to the sender's message.

G. Communication processes.

There are two kinds of communication processes.[Reference 16, pg.527] They are:

1. **One-Way**: This is any communication made by the sender in which feedback from the receiver does not occur.

2. **Two-Way**: This process involves the sender receiving feedback from the receiver.

The communication process is a critical one. Any breakdown can cause major side effects throughout an organization. There are various factors that could adversely effect the communication process. These factors are called barriers.[Reference 13, pp.516-524] Communication barriers have different levels of degradation. They are:

1. **Differing perceptions** - The individual variation between what information is sent and how the receiver interprets it.

2. **Language differences** - Foreign languages and information translation contribute to this barrier.

MODULE C - LESSON 4

CONTROLS

A. What are controls?

In order for management to function properly effective controls must be in place. A control is "the process of assuring that the actual activities conform to planned activities."[Reference 16, pg.556] It is important to note that there are two prerequisites for any control system. These are to have specific plans in place and a viable organizational structure.[Reference 5, pp.43-66] The control system consists of some basic steps which will be addressed next.

B. Control process.

The control process is basically the same for varying organizational functions.[Reference 12, pg.2] The three steps are {See Fig. C-11}:

1. **Establish standards** - Standards are the measuring units for establishing control mechanisms. These control mechanisms are the methods by which performance is measured.

2. **Performance measures** - This is a ongoing, forward-looking process that is used to quantitatively and/or qualitatively measure an organization's actual performance against established standards.

3. **Correction of deviations** - The process of feedback on the differences between standard and actual performance and the ability of the organization to react and correct the discrepancies.

C. Importance of controls.

The control process is important for various reasons. The organization's environment changes and deviations from the norm or standard may occur. The control process can ensure that change is correctly handled by the organization. Secondly, organizations are becoming more and more complex. This complexity can create potential problems within the organization. Third, managerial mistakes can also contribute to deviations found within the organization. The control system that is in place can ensure that the problems created by the aforementioned areas are minimized and corrected.[Reference 16, pp.559-560]

D. Types of controls.

Many control method exist and are used within many organizations. {See Fig. C-12} The majority of the control systems can be grouped into the four following control methods [Reference 16, pp. 562-564]:

1. **Pre-Action controls** - (Precontrols) This method "ensures that human, material and financial resources have been budgeted."

2. **Steering controls** - (Feed Forward) These controls are "designed to detect deviations from some standard goal and to permit corrective measures."

3. **Screening controls** - (Go/No Go) These controls are "procedures that must be followed or conditions that must be met before operations continue."

4. **Post-Action controls** - This method of controls "measure the results of a completed activity."

E. Characteristics of control systems.

Control systems have characteristics in common.[Reference 16, pg.572] The following is a list of characteristics of an effective control system:

1. Accurate
2. Timely
3. Objective & Comprehensive
4. Focused
5. Prescriptive & Operational
6. Coordinated
7. Flexible
8. Realistic
9. Acceptable

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MODULE C
GLOSSARY

Authority: Power to influence or command thought, opinion or behavior.

Autocracy: The authority or rule in which one person possesses unlimited power.

Barriers: A factor that impedes, separates or restricts movement.

Behavioral School: A group of management scholars trained in sociology, psychology and related fields who use their diverse knowledge to understand and improve the way organizations are managed.

Centralization: The extent to which authority is concentrated at the top of the organization.

Channel: The medium of communication between a sender and receiver.

Coercive Power: The negative side of reward power, based on the influencer's ability to punish the influencee.

Combine: To merge or to cause to unite.

Communication: The process by which people attempt to share meaning via the transmission of symbolic messages.

Control: The process of assuring that the actual activities conform to planned activities.

Controlling: The process of actually monitoring actual organizational activities to see that they conform to planned activities and correcting flaws or deviations.

Control System: Multistep procedure applied to various types of control activities.

Coordination: The integration of the activities of the separate parts of an organization to accomplish organizational goals.

Corporation: A body formed and authorized by law to act as a single person although constituted by one or more persons and legally endowed with various rights and duties including the capacity of succession.

Decentralization: The delegation of power and authority from higher to lower levels of the organization, often accomplished by the creation of small, self-contained organizational units.

Decoding: The interpretation and translation of a message into meaningful information.

Democracy: A government in which the supreme power is vested in the people and exercised by them directly or indirectly through a system of representation usually involving periodic held free elections.

Deviation: To stray especially from a standard, principle or norm.

Division of work: The breakdown of a complex task into components so that individuals are responsible for a limited set of activities instead of the task as a whole.

Effectiveness: The ability to determine appropriate objectives: "doing the right things."

Efficiency: The ability to minimize the use of resources in achieving organizational objectives: "doing thing right."

Empowerment: The act of delegating power and authority to a subordinate so that the goals of the manager can be accomplished.

Encoding: The translation of information into a series of symbols for communication.

Environment: The aggregate of social and cultural conditions that influence the life of an individual or community.

Expert Power: Power based on the belief or understanding that the influencer has specific knowledge or relevant expertise which the influencee does not.

Feedback (Job-based): The part of system control in which the results of actions are returned to the individual, allowing work procedures to be analyzed and corrected.

First-level Managers: Managers who are responsible for the work of operating employees only and do not supervise other managers; they are the lowest level managers in the organizational hierarchy.

Flexibility: Capable of responding or conforming to changing or new situations.

Forces: To cause one to act precipitously.

Formal Authority: Power rooted in the general understanding that specific individuals or groups have the right to exert influence within certain limits by virtue of their position within the organization.

Functional Authority: The authority of staff-department members to control the activities of other departments that are related to specific staff responsibilities.

Functional Organization: A form of departmentalization in which everyone engaged in one functional activity, such as marketing finance, is grouped into one unit.

Functional Strategy: Implementation strategy providing the details necessary to put organizational strategy into action.

Goal: The end toward which effort is directed.

Group Building: The group leader's specific function to fulfill the group's social needs by encouraging solidarity feelings.

Implement: To give practical effect to and ensure of actual fulfillment by concrete measures.

Influence: Any actions or examples of behavior that cause a change in attitude or behavior of another person or group.

Informal Organization: The undocumented and officially unrecognized relationships between members of an organization that inevitably emerge out of the personal and group needs of employees.

Information: Technically processed data that supplied about a specific situation or process.

Initial Strategy: The determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.

Inputs: Resources from the environment, such as raw materials and labor, that may enter any organizational system.

Lateral Communication: Communication between departments of an organization that generally follows the work flow, thus providing a direct channel for coordination and problem solving.

Lateral Relationship: A relationship that cuts across the chain-of-command, allowing direct contact between members of different departments.

Leader-member Relations: The quality of the interaction between a leader and his or her subordinates; the most important influence on the manager's power.

Leadership: The process of directing and inspiring workers to perform the task-related activities of the group.

Leadership Styles: The various patterns of behavior favored by leaders during the process of directing and influencing workers.

Legitimate Power: Power that exists when a subordinate or influencee acknowledges that the influencer has the "right" or is lawfully entitled to exert influence - within certain bounds.

Line Authority: The authority of those managers directly responsible, throughout the organization's chain-of-command, for achieving organizational goals.

Management: The process of planning, organizing, leading and controlling the work of organizational members and of using all available organizational resources to reach stated organizational goals.

Management Information: Information representing relevant and important features about a situation so that a manager can take specific action.

Matrix Organization: An organizational structure in which each employee reports to both a functional or division manager and to a project or group manager.

Measurement: A figure, extent or amount obtained by measuring.

Message: The encoded information sent by the sender to the receiver.

Monitor: To watch, observe or check of special or specific purpose.

Motivation: The factors that cause, channel and sustain an individual's behavior.

Noise: Anything that confuses, disturbs, diminishes or interferes with communication.

Objective: Something toward which effort is directed; an aim or end of action.

One-way Communication: Any communication from the sender without feedback from the receiver.

Operational Strategy: Organizational strategy spelling out facility locations and including marketing and financial strategies.

Organizing: The process of arranging an organization's structure and coordinating its managerial practices and use of resources to achieve its goals.

Outputs: Transformed inputs that are returned to the external environment as products or services.

Planning: The process of establishing objectives and suitable courses of action before taking action.

Policy: A standing plan that establishes general guidelines for decision making.

Policy Formulation: The concept of implementing day-to-day rules that puts boundaries around what a functional area can and cannot do.

Position Power: The power that is inherent in the formal position the leader holds. This power may be great or small, depending upon the specific position.

Post-action Controls: Method of control for measuring the results of a completed activity.

Power: The ability to exert influence, that is, the ability to change the attitudes or behavior of individuals or groups.

Pre-action Controls: Control method ensuring that human, material and financial resources have been budgeted.

Predetermined Standard: Type of measurement based on careful analysis of both the organizational unit's internal and external environments.

Prescriptive: Acquired by, founded on or determined by prescription or by long standing custom.

Product/Market Organization: The organization of a company by divisions that brings together all those involved with a certain type of product or customer.

Program: A single-use plan that covers a relatively large set of organizational activities and specific major steps, their order and timing and unit responsible for each step.

Receiver: The individual whose senses perceive the sender's message.

Referent Power: Power based on the desire of the influencee to be like or identify with the influencer.

Resource: A source of supply or support.

Reward Power: Power derived from the fact that one person, known as an influencer, has the ability to reward another person, known as an influencee, for carrying out orders, which may expressed or implied.

Rules: Standing plans that detail specific actions to be taken in a given situation.

Sender: The initiator of a communication.

Single-use plans: Detailed courses of action used once or only occasionally to solve problems that do not occur repeatedly.

Staff Authority: The authority of those groups of individuals who provide line managers with advice and services.

Standing Plans: An established set of decisions used by managers to deal with recurring or organizational activities; major types or policies, procedures and rules.

Steering Controls: (Feedforward control) Control method designed to detect deviations from some standard goal and to perform corrective measures.

Strategy: The broad program for defining an achieving an organization's objectives; the organization's response to its environment over time.

Style: A manner or method of acting or performing especially as sanctioned by some standard. A distinctive or characteristic manner.

Task Structure: A work situation variable that helps determine a manager's power. In structured tasks, managers automatically have high power; in unstructured tasks, the manager's power is diminished.

Two-way Communication: Communication that occurs when the receiver provides feedback to the sender.

Work: A specific task, duty, function or assignment often being a part or phase of some larger activity.

Yes/no Controls: Control method for screening procedures that must be followed or conditions that must be met before operations continue.

FOUR BASIC STEPS IN PLANNING

I. ESTABLISH GOALS

II. DEFINE THE SITUATION

III. DETERMINE AIDS & BARRIERS

IV. DEVELOP A SET OF ACTIONS

FIG. C-1

STRATEGY

FORMULATION & IMPLEMENTATION

I. GOAL FORMULATION

II. IDENTIFICATION OF CURRENT OBJECTIVES & STRATEGY

III. ENVIRONMENTAL ANALYSIS

IV. RESOURCE ANALYSIS OF ORGANIZATIONAL STRENGTHS & WEAKNESSES

V. IDENTIFICATION OF STRATEGIC OPPORTUNITIES & THREATS

VI. GAP ANALYSIS: DETERMINE EXTENT OF CHANGE REQUIRED IN CURRENT STRATEGY

VII. STRATEGIC DECISION MAKING:
- + Develop Alternatives
- + Evaluate Alternatives
- + Select Alternatives

VIII. STRATEGY IMPLEMENTATION

IX. MEASUREMENT & CONTROL OF PROGRESS

FIG. C-2

STRATEGY LEVELS

CORPORATE LEVEL

+ MULTIBUSINESS CORPORATION

BUSINESS-LEVEL

+ STRATEGIC BUSINESS UNIT

FUNCTIONAL-LEVEL

+ RESEARCH & DEVELOPMENT
+ MANUFACTURING
+ MARKETING
+ SALES
+ FINANCE

FIG. C-3

ORGANIZATIONAL PLANS

HEIRARCHY

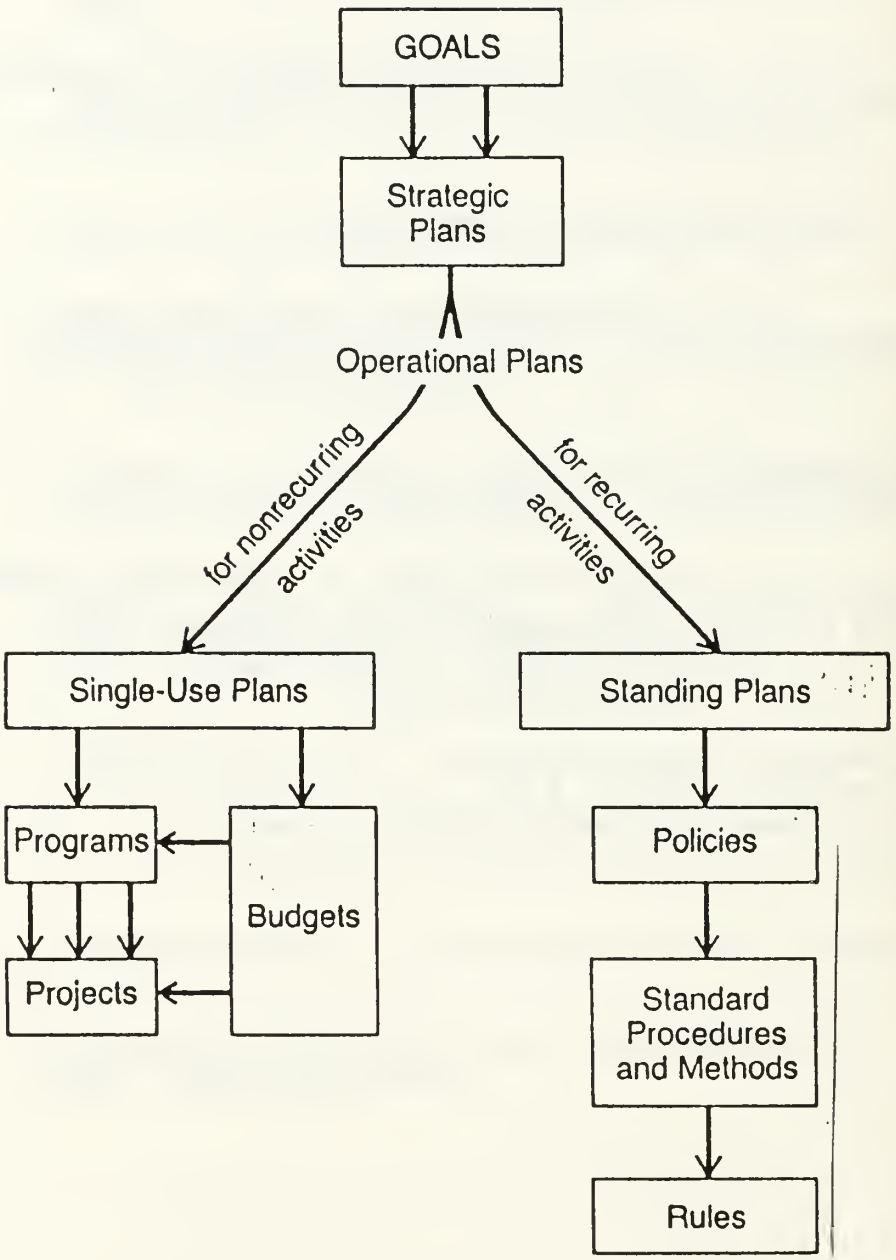


FIG. C-4

ORGANIZATION CHART

FUNCTIONAL

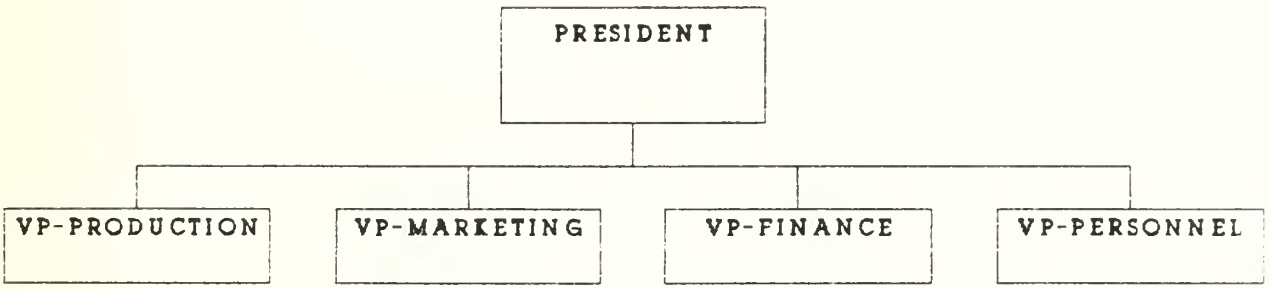


FIG. C-5

ORGANIZATION CHART

PRODUCT OR MARKET

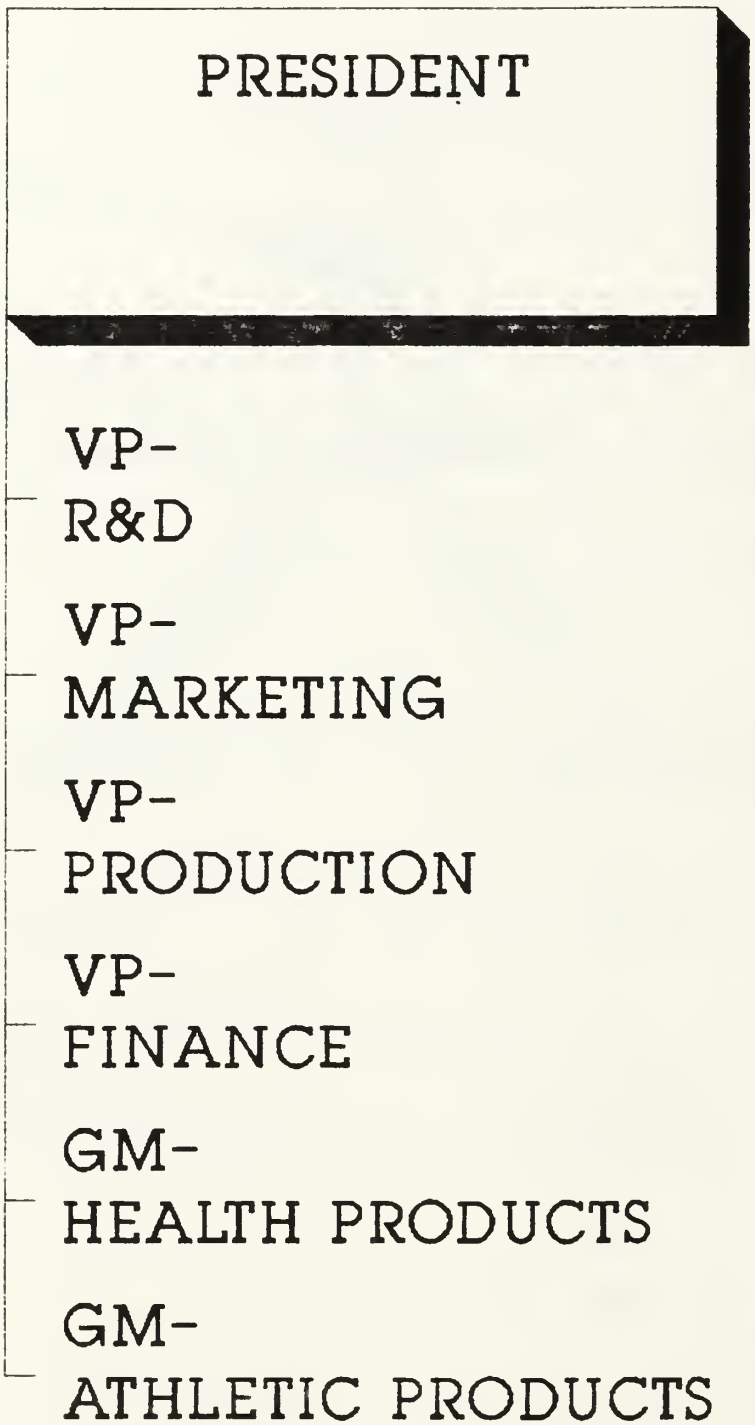
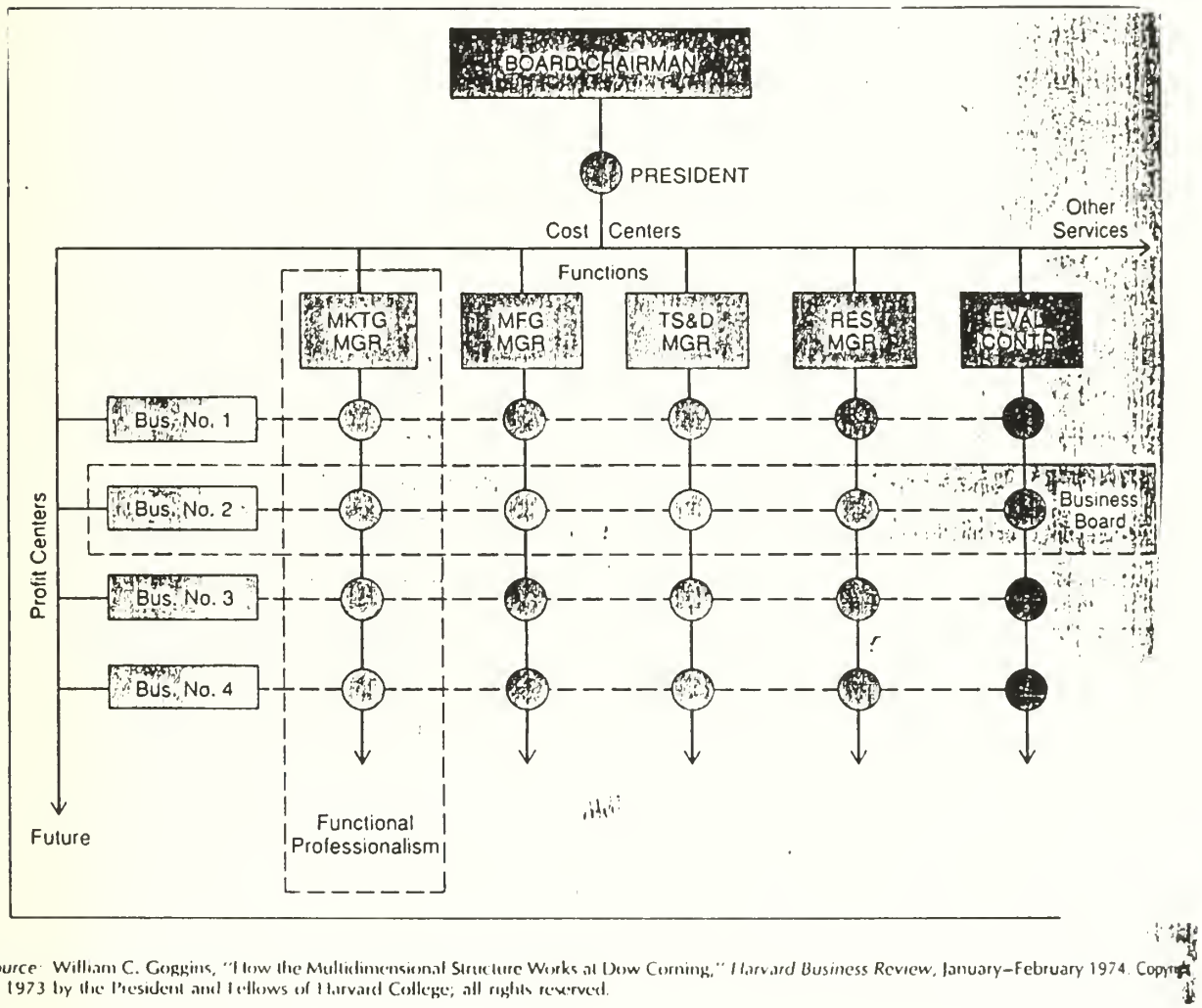


FIG. C-6

ORGANIZATION CHART

MATRIX



Source: William C. Goggins, "How the Multidimensional Structure Works at Dow Corning," *Harvard Business Review*, January–February 1974. Copyright © 1973 by the President and Fellows of Harvard College; all rights reserved.

FIG. C-7

ORGANIZATION CHART

LINE & STAFF RELATIONSHIP

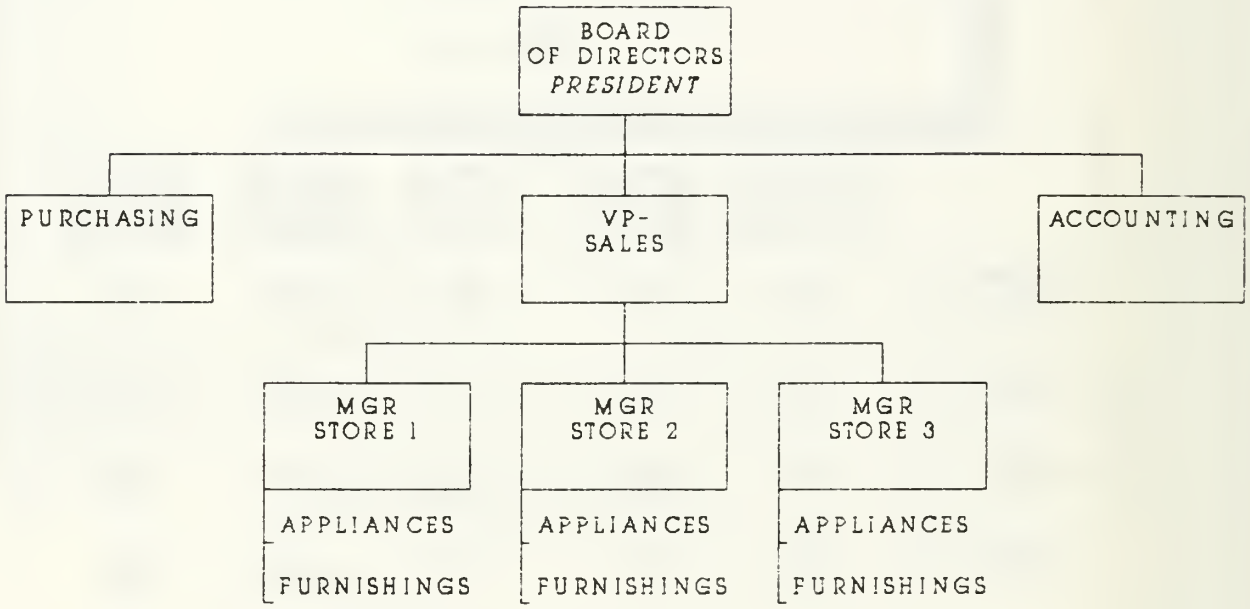


FIG. C-8

ORGANIZATION CHART

FUNCTIONAL AUTHORITY RELATIONSHIP

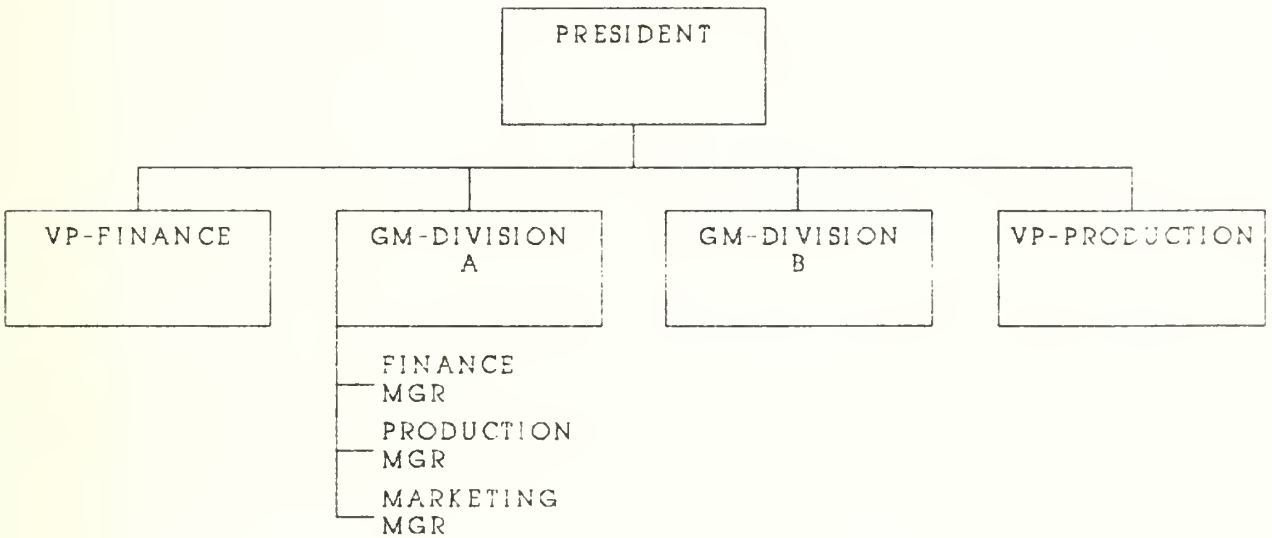


FIG. C-9

COMMUNICATION PROCESS

TRANSMIT

SENDER (SOURCE)

ENCODE

MESSAGE

CHANNEL

+ NOISE

+ FEEDBACK

RECEIVE

DECODE

RECEIVER

FIG. C-10

CONTROL PROCESS

BASIC STEPS

1. ESTABLISH STANDARDS & METHODS OF MEASURING PERFORMANCE

2. MEASURE PERFORMANCE

3. DOES PERFORMANCE MATCH STANDARDS?

   a. YES, DO NOTHING

   b. NO, TAKE CORRECTIVE ACTION

FIG. C-11

TYPES OF CONTROL INTERACTIONS

PRE-ACTION CONTROLS

+ AFFECTS INPUT OF INFORMATION
+ AFFECTED BY POST-ACTION CONTROLS OF CORRECTIVE ACTIONS

STEERING CONTROLS

+ AFFECTS INPUTS BY CORRECTIVE ACTIONS
+ AFFECTS INFORMATION PROCESSING BY CORRECTIVE ACTION
+ AFFECTED BY INPUTS
+ AFFECTED BY PROCESSING INFORMATION

YES/NO CONTROLS

+ AFFECTS INFORMATION PROCESSING
+ AFFECTED BY PROCESSING INFORMATION

POST-ACTION CONTROLS

+ AFFECTS BOTH PRE-ACTION CONTROLS AND INFORMATION PROCESSING
+ AFFECTED BY OUTPUT OF INFORMATION

FIG. C-12

MODULE - D

AUDITING

MODULE D

AUDITING

INDEX . . . . . D - 1

OVERVIEW OF AUDITING . . . . . D - 2

LEARNING OBJECTIVES. . . . . D - 3

LESSON I Auditing . . . . . D - 4

A. Types of Audits . . . . . D - 4

B. Audit Phases . . . . . D - 5

C. Auditor's Opinion . . . . . D - 6

D. Materiality . . . . . D - 8

LESSON II Auditing Standards . . . . . D - 9

A. Generally Accepted Auditing Standards . . D - 9

B. Audit Objectives . . . . . D - 10

C. Elements of Quality Control . . . . D - 13

LESSON III Audit Risk . . . . . D - 16

LESSON IV Audit Evidence . . . . . D - 18

REFERENCES . . . . . D - 23

GLOSSARY . . . . . D - 24

OUTLINE/VIEWGRAPHS

MODULE D
AUDITING OVERVIEW

This module provides a brief introduction into auditing. It introduces you to and dicusses auditing standards, evidence, and the risks associated with auditing. This module is preceded by a list of learning objectives in which the student should be familiar upon completion of the associated classroom lecture. The purpose of this module is to introduce the student to the audit process and basis audit terminology.

MODULE D

LEARNING OBJECTIVES

1. Be able to define auditing.
2. Be able to distinguish the difference between internal and external audits.
3. Be able to name the three types of audits.
4. Be able to define an operational audit.
5. Be able to define a compliance audit.
6. Be able to define audits of financial statements.
7. Be able to describe the meaning of an Unqualified Opinion.
8. Be able to describe the meaning of a Qualified Opinion.
9. Be able to describe the meaning of a Disclaimer of Opinion.
10. Be able to describe the meaning of an Adverse Opinion.
11. Be able to define the term materiality.
12. Be able to list and describe the ten Generally Accepted Auditing Standards.
13. Be able to identify and describe the nine general audit objectives.
14. Be able to name and describe the five management assertions in respect to audits.
15. Be able to name and describe the nine elements of quality control in auditing.
16. Be able to describe business risk.
17. Be able to describe information risk.
18. Be able to identify the decisions an auditor must make prior to gathering evidence when conducting an audit.
19. Be able to explain the the three determinants of persuasiveness of evidence.
20. Be able to identify and describe the seven types of audit evidence.

MODULE D. LESSON I

AUDITING

Auditing is the process by which a person independent of an organization accumulates and evaluates quantifiable information about the firm. The purpose is to determine and report the accuracy of the entity's related financial statements based upon evidence obtained which is compared to preestablished criteria.

There are two general categories of audits: external and internal. An external audit is a verification process by which an independent evaluation and appraisal is made of an organization's financial statements. An internal audit is a process in which organizational personnel evaluate procedures for safeguarding assets and records and assist managers in appraising the organization's operational efficiency.

"The external auditor starts with the end results and works backward, whereas the internal auditor starts with the basic activities and works forward to his organizational service objectives." (REF 2, page 121) The external auditor's primary interest is to express an opinion of whether the financial statements are fairly presented by reconstructing the previous year's transactions. "External auditors do not portray the financial condition of their clients, but rather verify the accuracy of their statements." (REF 6, page 11)

"Internal auditing is the staff function of organized investigation and appraisal of accounting, financial, and operating activities within a company for the purpose of aiding top management in efficient administration of the enterprise." (REF 8, page 541) In layman terms, the internal auditor is more concerned with the operational effectiveness of an organization's activities and how they contribute to its profitability and economic welfare.

A. TYPES OF AUDITS.

There are many types of audits. The three most common and the ones we will discuss are operational audits, compliance audits, and

audits of financial statements.

1. **Operational Audits.** "An operational audit is a review of any part of an organization's operating procedures and methods for the purpose of evaluating efficiency and effectiveness." (REF 1, page 4). When the audit is complete, management can expect a report on deficiencies identified and recommended measures to be taken to correct these discrepancies. It is impossible to characterize the conduct of typical operational audits because they vary with organizational size and structure. A key difference or uniqueness of operational audits is that they are not easily quantifiable. Much of the evaluation cannot be measured statistically. Rather ,it is subjective rather than objective as in the case of compliance audits or audits of financial statements. Operational auditing is very similar to management consulting.

2. **Compliance Audits.** "The purpose of a compliance audit is to determine whether the auditee is following specific procedures or rules set down by some higher authority." (REF 1, page 4). Are the employees following procedures, rules, and guidelines set forth by prescribed by the organization.

The results of compliance audits are usually reported directly to the individuals and their supervisors of the areas concerned, as well as to senior management. Management uses this information to monitor and control organizational effectiveness and efficiency.

3. **Audits of Financial Statements.** "An audit of financial statements is conducted to determine whether the overall financial statements are stated in accordance with specified criteria." (REF 1, page 5). The statements audited include the income statement, statement of cash flows, and the statement of financial position, including accompanying footnotes. An audit of financial statements is used by different groups for different purposes. If a particular user does not feel there is sufficient information for their purposes, they have the option of obtaining more data.

B. AUDIT PHASES.

There are four general phases in conducting an audit. They are the

preliminary survey, review and test of management control, detailed examination, and report development.

1. **The Preliminary Survey.** The purpose of the preliminary survey is to obtain background and general information on all aspects of the organization to be audited. This includes historical, operational, and legal information about any of its activities. The auditor needs to have a working knowledge of the entity in order to make a preliminary determination as to what the tentative audit objective may be.

2. **Review and Testing of Management Control.** In the review and test of management control phase, the auditor firms the tentative objective in order to begin an examination of the organization. Preliminary evaluation and testing of management and control transactions of the firm are performed to determine if evidence obtained from a detailed examination would be competent. "By obtaining evidence on each element of the tentative audit objective, the auditor can determine whether there will be a firm objective that can be used as a basis for detail examination." (REF 5, page 26).

3. **Detailed Examination.** This part of the audit function is normally looked upon as the actual audit. "The evidence in this phase will have to be sufficient as well as competent, material, and relevant in order for the auditor to arrive at an acceptable conclusion on the audit objective and then report that conclusion to a third party." (REF 5, page 27).

4. **Report Development.** The purpose of the report development phase is for the auditor to report their conclusion based upon the evidence gathered. The type and requirements of the audit will dictate the form used for reporting and presenting the audit results.

C. AUDITOR'S OPINION.

"The primary objective of an independent audit is the examination of sufficient accounting data and other evidence to permit the auditor to express an opinion on the reasonableness of

management's representation in the financial statements." (REF 4, page 27). Depending on the findings and the scope of his examination the auditor may express one of the following opinions:

1. **Unqualified Opinion.** "When the auditor has made an examination in accordance with generally accepted accounting standards, applying all generally recognized normal auditing procedures, and is satisfied that the financial statements present fairly the financial position and results of operation in conformity with generally accepted accounting principles (GAAP) consistently. However, he should not express such an unqualified opinion unless he is satisfied in all material respects with the adequacy of the disclosures in the financial statements." (REF 4, page 42).

2. **Qualified Opinion.** "When an auditor believes the financial statements are a generally fair presentation, but he has not been completely satisfied on some point or he feels that some part of the financial position or results of operation is not fairly presented, he may express a qualified opinion and indicate the nature of the reservation or exception." (REF 4, page 43). This may occur because the scope of the audit has been restricted such that it is material enough to mention but not so material as to prevent the expression of an opinion, or because there is a deviation from GAAP which causes a misstatement material enough to mention but not so material as to make the statements misleading.

3. **Disclaimer of Opinion.** "If the nature of the proposed qualification is so material as to nullify the opinion, the auditor's report must state that he is not in a position to express an opinion on the financial statements taken as a whole and must clearly indicate his reasons therefor." (REF 4, page 44). This states that the scope of the audit has been restricted in a way that is so material that the auditor is not able to express an opinion.

4. **Adverse Opinion.** An adverse opinion is where there is a deviation from GAAP that is so material that the statements are misleading and management is aware of it.

D. MATERIALITY.

"The degree to which financial statements may be imprecise but not misleading is known as materiality. When a misstatement or omission is so great as to lead an informed user of the financial statements to make a different decision than he would if the defect did not exist, the deficiency is said to be material." (REF 3, page 12-3). "Materiality is a matter of relative significance and depends upon the relationship between the amount of the item of interest and some relevant basis for comparison." (REF 10. page 137).

It is the auditor's responsibility to determine if financial statements are materially misstated. "The auditor uses materiality in essentially two ways: (1) in evaluating the fairness of presentation and reporting (materiality in accounting), and (2) in deciding questions involving the development and execution of the audit program (materiality in auditing)." (REF 10, pages 136-167). If it is determined that there is a material misstatement, the auditor will bring it to the client's attention so a correction can be made. If the client refuses to make a correction to the financial statements the auditor has no choice but to render a qualified or adverse opinion.

MODULE D, LESSON II

AUDITING STANDARDS

A. GENERALLY ACCEPTED AUDITING STANDARDS

The generally accepted auditing standards are general guidelines used to aid professional auditors in fulfilling their responsibilities in the audit of historical financial statements. These auditing standards included such ethical qualities as competence, independence, reporting requirements, and evidence.

There are ten generally accepted auditing standards which were developed by the (American Institute of Certified Public Accountants) AICPA in 1947. Although they are not considered very specific, they represent a framework upon which the AICPA can provide interpretations. The ten auditing standards, categorized into three groups, are as follows:

GENERAL STANDARDS

1. "The staff assigned to conduct the audit should collectively possess adequate professional proficiency for the tasks required." (REF 11, page 3-1).

2. "In all matters relating to the audit work, the audit organization and the individual auditors, whether government or public, should be free from personal and external impairments to independence, should be organizationally independent, and should maintain an independent attitude and appearance." (REF 11, pages 3-4 and 3-5).

3. "Due professional care should be used in conducting the audit and in preparing related reports." (REF 11, page 3-10).

STANDARDS OF FIELD WORK

4. "The work is to be adequately planned and assistants, if any, are to be properly supervised.

5. "The auditor should obtain a sufficient understanding of the internal control structure to plan the audit and to determine the nature, timing, and extent of tests to be performed.

6. Sufficient competent evidential matter is to be obtained through inspection, observation, inquiries, and confirmations to

afford a reasonable basis for an opinion regarding the financial statements under examination." (REF 1, page 16).

STANDARDS OF REPORTING

7. "The report will state whether the financial statements are presented in accordance with generally accepted accounting principles.

8. The report shall identify those circumstances in which such principles have not been consistently observed in the current period in relation to the preceding period.

9. Informative disclosures in the financial statements are to be regarded as reasonably accurate unless otherwise stated in the report.

10. The report shall either contain an expression of opinion regarding the financial statements, taken as a whole, or an assertion to the effect than an opinion cannot be expressed. When an overall opinion cannot be expressed, the reasons therefore should be stated. In all cases where an auditor's name is associated with financial statements, the report should contain a clear cut indication of the character of the auditor's examination, if any, and the degree of responsibility he is taking." (REF 1, page 16).

B. AUDIT OBJECTIVES

To conduct an audit the auditor must subdivide it into manageable components. For any segment of the audit there are several audit objectives that must be met. Knowledge of these objectives is essential to proper and efficient conduct of this task. "The framework used to develop specific audit objectives for each phase of the process consists of management assertions and general audit objectives." (REF 1, page 141).

Management assertions are implied or expressed representations by management about the components of financial statements and are directly related to generally accepted accounting principles. They are part of the criteria used by management to record and disclose accounting information in the financial statements. These

management assertions are classified into five broad categories:

1. **Existence or Occurrence.** "These assertions deal with whether assets, obligations, and equities included in the balance sheet actually existed on the balance sheet date and whether revenues and expenses included on the income statement actually occurred during the accounting period." (REF 1, page 143). In other words, management will assert that sales in the income statement represent exchanges of goods and services that actually took place.

2. **Completeness.** "Completeness assertions state that all transactions and accounts that should be presented in the financial statements are included." (REF 1, pages 143-144). An example is where a sale is recorded when it did not take place, or where a sale was not recorded when indeed it did occur.

3. **Rights and Obligations.** "These management assertions deal with whether assets are the rights of the entity and liabilities are the obligations of the entity at a given date." (REF 1, page 144). In this case management will assert that assets identified in the financial statements are owned by the company and that liabilities listed correspond to obligations of the entity.

4. **Valuation or Allocation.** Valuation and allocation management assertions deals with whether components of the financial statements such as assets, liabilities, equity, revenue, and expenses are stated at appropriate amounts. An example is where management asserts that property or equipment is recorded at historical cost and that such cost is systematically allocated to various accounting periods.

5. **Presentation and Disclosure.** The presentation and disclosure management assertions deal with whether components of the financial statements are properly classified, described, and disclosed as required. In this case management would assert such items as, long-term liabilities in the balance sheet will not mature within a year, or the stated accounts receivable balance is a realizable value.

Audit objectives are intended to provide a framework to help

the auditor accumulate sufficient competent evidence about financial statements so management assertions can be properly justified. There are two categories of audit objectives, general audit objectives and specific audit objectives. General audit objectives are applicable to every account balance of the financial statements and are stated in broad terms. Specific audit objectives are also applied to each account balance but are tailored specifically to each individual engagement. Once the general objectives are understood, specific objectives can be developed for each account balance depending on the scope of the audit to be performed. For purposes of this course we concentrate on the nine general audit objectives. They are:

1. **Overall Reasonableness.** The overall reasonableness audit objective helps the auditor determine whether the account balances appear reasonable after considering the evaluation of all information collected. Tests for overall reasonableness aid the auditor in determining which accounts if any may contain material errors. This information assists in planning the effort in gathering more detailed evidence.

2. **Validity.** The validity objective determines if the amounts included in the financial statements should actually be included. Validity deals with the potential overstatement of account balances.

3. **Completeness.** The completeness objective deals with whether all amounts that should be included have actually been included in the financial statements. In contrast to the validity objective, the completeness objective is concerned with unrecorded transactions or the understatement of account balances.

4. **Ownership.** The ownership objective ensures that the assets and liabilities recorded in the financial statements do indeed belong to the entity.

5. **Valuation.** The valuation objective ensures two things in respect to the financial statements. It verifies that the valuation of individual balances are correct. It also verifies the arithmetic accuracy of all calculations which are required to

produce account balances and the financial statements themselves.

6. **Classification.** The classification objective determines whether items are included in correct accounts and are properly displayed on the financial statements. For example, assets and liabilities are checked to see if they are properly separated into long-term and short-term accounts.

7. **Cutoff.** The cutoff objective is to ensure that transactions are properly recorded in the period in which they occurred. For example, an auditor may check to see if all revenues received during a specific reporting period are included in the financial statements for that period. Transaction which are most likely to be misstated are usually near the end of an accounting period.

8. **Mechanical Accuracy.** The mechanical accuracy objective is concerned that the general ledger accurately reflects with the details supported by subsidiary ledgers, journals and schedules. For example, individual accounts receivable should be the same in the accounts receivable subsidiary ledger and the total should equal the general ledger control account.

9. **Disclosure.** The disclosure objective is to ensure account balance and related disclosure requirements are properly presented in the financial statements. It is to make certain all balance sheet and income statement accounts and related information are correctly stated and are properly described in the body and footnotes of the statements.

C. ELEMENTS OF QUALITY CONTROL IN AUDITING

"The theory of auditing includes basic concepts, fundamental principles, and a set of guiding standards. In everyday practice the standards are paramount, because they contain the criteria governing the overall quality of audit performance." (REF 3, page 11-1). There are specific quality control procedures established for Certified Public Accountants (CPA) firms for the conduct of audits. Thus, procedures vary depending on such things as the size of the firm, the number of practice offices, and the nature of the

firm. For example, the quality control procedures of a small independent firm with 5-10 employees would vary greatly when compared to the procedures of a large conglomerate firm with numerous offices nationwide.

Although procedures vary, there are nine basic elements of quality control that firms should consider in setting their own policies and procedures.

1. **Independence.** The auditor(s) must have an independent mental attitude. There cannot be any ties which may bias the auditor's professional judgement in making their analysis. Independence is considered impaired if during the professional engagement the auditor:

a. Had direct or indirect financial interest in the enterprise or was a trustee, executor, or was administrator of any estate or trust of which personal material or financial gain was possible.

b. Had a jointly held business investment with the firm or any officer, director, or principal stockholder thereof which was considered material.

c. Had any loan to or from the enterprise or any officer, director, or principal stockholder other than loans obtained under normal lending procedures, terms, and requirements. Loans considered obtained under normal lending procedures include common home loans and other related secured loans not considered material in relation to the net worth of the firm.

"Independence bespeaks an honest disinterestedness on the part of the auditor in the formulation and expression of his opinion." (REF 8, page 8).

2. **Assigning Personnel to Engagements.** All personnel assigned to engagements should have an adequate degree of technical training, knowledge, and proficiency in the area of audit they are to perform.

3. **Consultation.** When members of the audit staff face unfamiliar situations or have technical problems, procedures are in place to ensure additional guidance is obtained from more qualified

and knowledgeable personnel of the audit team.

4. **Supervision.** There should be adequate and proper supervision of all work at all levels in every engagement. Review and approval of all audit programs is required by the audit team leader prior any detailed testing.

5. **Hiring.** All new personnel should be qualified to performed all tasks assigned competently. All personnel hired to assist in a professional audit must be interviewed and determined to be knowledgeable in the technical areas they will work.

6. **Professional Development.** All personnel must receive sufficient professional development to enable them to perform their work competently. "Along with on-the-job experience, continuing professional education (CPE) in formal modes is required of most auditors. Over half the state Certified Public Accountant licensing boards require auditors to obtain an average of forty hours CPE credit a year to retain their license to practice." (REF 3, page 11-9).

7. **Advancement.** Promotion opportunities and policies should be such that personnel are qualified for newly assigned responsibilities. Each audit team member should be evaluated on all engagements using a standardized evaluation form which records their professional development.

8. **Acceptance and Continuation of Clients.** "All existing and potential clients should be reviewed regularly to minimize the chance of associating with firms lacking integrity." (REF 1, page 21). A client evaluation form should be reviewed prior to accepting new clients which looks at predecessor auditor comments and their evaluation of the firms management.

9. **Inspection.** There should be policies and procedures in existence which make sure the procedures of the eight previous quality control elements are consistently followed. A quality control coordinator should annually test their internal quality control procedures to ensure maximum compliance.

MODULE D. LESSON III

RISKS IN AUDITING

Auditing services are used extensively by the government as well as by businesses and nonprofit organizations. The need for auditing is attributed to the need of organizations to borrow money. The decision of a bank manager in making a loan to a business is based largely upon the financial condition of the business as reflected by its financial statements. If the bank intends to make the loan, it will base the rate of interest on three risk factors.

1. **Risk-free Interest Rate.** "This is approximately the rate the bank could earn by investing in U.S. treasury notes for the same length of time as the business loan." (REF 1, page 8).

2. **Business Risk for the Customer.** "This risk reflects the possibility the business will not be able to repay its loan because of economic or business conditions such as a recession, poor management decisions, or unexpected competition in the industry." (REF 1, page 8).

3. **Information Risk.** "This reflects the possibility that the information upon which the business risk decision was made was inaccurate. A likely cause of the information risk is the possibility of inaccurate financial statements." (REF 1, page 8).

"As society becomes more complex, there is an increased likelihood that unreliable information will be provided to decision makers. There are several reasons for this: remoteness of information, bias and motives of provider, voluminous data, and the existence of complex exchange transactions." (REF 1, page 9).

a. **Remoteness of Information.** Today , it is almost impossible for decision makers to have firsthand knowledge about the organization in which he does business. This requires him to rely upon information from others, thus increasing the likelihood that it may be misstated or invalid.

b. **Bias and Motives of the Provider.** Information which is provided by a person whose goals are inconsistent with the goals of

the decision maker may be bias in the favor of the provider. Honest optimism about future events or an intentional emphasis designed to influence users in a certain manner are perfect examples. Whatever the case, the result is a misstatement of information.

c. **Voluminous Data.** As organizations grow, so does their need for information. This increases the likelihood that improper information will be included in records and documents in proportion to the increase in the number of transactions occurring from daily operations. Depending on the capabilities and limitations of the organization's supporting management information systems, misinformation could be compounded or substantially reduced.

d. **Complex Exchange Transactions.** Exchange transactions between organizations has become increasingly complex and more difficult to record. The correct accounting treatment of various expenditures may vary drastically from one accountant to another which poses very difficult and important problems. Sometimes there is no one correct answer so one must be prepared to defend their position, if required .

MODULE D. LESSON IV

AUDIT EVIDENCE

One of the biggest decisions facing an auditor is determining the appropriate amount of evidence to accumulate in order to ensure the client's financial statements are fairly stated. "Evidence, for auditing purposes consists of nothing more than facts in some form which have inherent objective properties that tend to influence the auditor's mind." (REF 10, page 108). Since it is impossible for auditors to check all canceled checks, vendor invoices, documents evidencing the receipt of goods, shipping documents, etc., the auditor must make the following decisions when gathering evidence:

1. **Audit Procedures.** "Audit procedures are the detailed instructions for the collection of a particular type of audit evidence that is to be obtained at some time during the audit." (REF 1, page 166). In designing audit procedures, it is common to spell them out in sufficient specific terms to permit their use during the audit.

2. **Sample Size.** Once an audit procedure is selected, it is possible to vary the sample size from one to all items in the population being tested. The decision of how many samples to be taken must be determined by the auditor for each audit procedure based upon the risk.

3. **Items to Select.** After sample sizes have been decided for an audit procedure, the decision has to be made on which particular items to examine. For example, the auditor may choose to select 300 canceled checks from a population of 3,000 for comparison with the cash disbursements journal. The 300 checks the auditor decides to examine may be the first 300 in a particular month, the 300 largest, or they could be randomly selected.

4. **Timing.** The audit of financial statements normally covers a period such as a year and the audit itself is not usually completed until several weeks or months after the end of the period. Therefore, the timing of various phases of the audit may

occur from early in the accounting period to long after it has past.

"The detailed description of the results of the four evidence decisions for a specific audit is called an audit program." (REF 1, page 166). It will always include a list of audit procedures, sample sizes, items to be selected, and the timing of the entire evolution.

Because of the nature of evidence and cost considerations, it is unlikely that the auditor will be completely convinced that their opinion on the accuracy of financial statements is correct. The combination of all audit evidence, if persuasive enough, is sufficient to render an opinion beyond a reasonable doubt. The three determinants of persuasiveness of evidence are:

1. **Competence.** Competence refers to the degree to which evidence can be considered believable or trust worthy. "To express an opinion on the financial statements, the auditor must acquire evidence about the reliability or truth of the information furnished." (REF 10, page 107). If evidence is considered very reliable, it does a great deal in persuading the auditor in respect to the fairness of the financial statements being audited. Reliability of evidence is sometimes used synonymous with competence.

2. **Sufficiency.** "The quantity of evidence obtained determines its sufficiency. Therefore, the sample size selected is very important in determining whether it is sufficient enough as evidence." (REF 1, page 168). Additionally, the composition of the sample is just as important as the sample size. It is imperative that the sample is representative of the population to be considered persuasive evidence.

3. **Timeliness.** "The timeliness of audit evidence refers to when it was accumulated or to the period covered by the audit. Evidence is more persuasive for balance sheet accounts when it is obtained as close to the balance sheet date as possible." (REF 1, page 169). A random sample of sales transactions for entire year would be more persuasive than a sample from only the first six

months.

The persuasiveness of evidence can only be evaluated after considering the combination of competence, sufficiency, and timeliness. A sample of highly competent evidence is not persuasive unless it is also timely. Similarly, a large sample of unreliable data evidence is not persuasive.

In addition to choosing which audit procedures to use, there are seven broad categories of evidence from which the auditor can choose. They are referred to as types of evidence and are described below.

1. **Physical Examination.** Physical examination is the inspection by the auditor of a tangible asset. "It implies count, identification, and to a limited degree, verification of genuineness and quality." (REF 7, page 51). Physical evidence is most often associated with cash and inventory, but is also applicable to the verification of securities, notes receivable, and tangible fixed assets. Physical examination, which is a direct means of verifying that an asset actually exists, is regarded as one of the most reliable and useful types of audit evidence.

2. **Confirmation.** "A confirmation is a written or oral statement from a third party in response to the auditor's request as to the accuracy of information." (REF 3, page 12-3). Since confirmations come from sources independent of the clients, they are a highly regarded and often used type of evidence.

3. **Documentation.** "Documentation is the auditor's examination of the client's documents and records to substantiate the information that is or should be included in the financial statements." (REF 1, page 171). Documents are classified as internal and external. "An internal document is one that has been prepared and used within the client's organization and is retained without ever going to an outside party such as a customer or vendor. An external document is one that has been in the hands of someone outside the client's organization who is a party to the transaction being documented, but which is either currently in the hands of the client or readily accessible." (REF 1, page 172).

Since external documents have been in the hands of both the client and another party, they are regarded as more reliable evidence than internal documents.

4. **Observation.** Observation is the use of senses to assess the activities of an organization. For example, an auditor may watch the process by which a certain transaction is handled in order to obtain a working knowledge of how it functions. A general impression of the client's facility may provide evidence to the operability of its equipment by taking a stroll through the factory. Observation is rarely sufficient enough and is usually followed up with other corroborative evidence.

5. **Inquiries of the Client.** "Inquiry consists of asking questions and of obtaining satisfactory answers to those questions." (REF 7, page 57). Information obtained from the client is not regarded as conclusive because it is not considered from an independent source and may be biased in the client's favor. When evidence is obtained in this manner, the auditor will attempt to corroborate the information through other procedures.

6. **Mechanical Accuracy.** Mechanical accuracy is a matter of rechecking a sample of the client's computations. It is just checking the client's arithmetical accuracy. For example, it includes things such as adding journal and subsidiary ledgers, or checking the calculation of a depreciation expense. "At any point where there is a chance for important mathematical errors, some type of proof or check should be applied." (REF 7, page 100). These types of tests are sometimes referred to as reperformance checks.

7. **Analytical Procedures.** "Analytical procedures use comparisons and relationships to determine whether account balances appear reasonable." (REF 1, page 173). An example is comparing this year's sales figure with the preceding and this year's figure. It is also used to isolate accounts or transactions that should be investigated more extensively to help in deciding whether additional verification is needed. Analytical procedures should be performed early in the audit to aid in deciding which accounts need

no further verification, where other evidence can be reduced, and which audit areas should be more thoroughly investigated.

MODULE D - AUDITING

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MODULE 6
GLOSSARY

Adverse opinion: An opinion expressed by an auditor stating that there is such a deviation from GAAP that is so material that the statements are misleading and management is aware of it.

Analytical procedures: Procedures used to compute comparisons and relationships in order to determine if account balances appear reasonable.

Audit: The process by which quantifiable information (evidence) is gathered, analyzed, and evaluated to determine and report about the accuracy of a firm's related financial statements.

Business Risk: The risk that reflects the possibility that a business may not be able to repay liabilities because of economic, business, or market conditions.

Classification: Determines whether items are included in correct accounts and are properly displayed on the financial statements.

Confirmation: Written or oral statement from a third party in response to an auditor's request.

Competence: The degree to which evidence can be considered believable or trust worthy.

Completeness: An assertion which states whether all transactions and accounts that should be represented in the financial statements are included.

Compliance audit: An audit which ensures that the enitity is following the policies and procedures instituted by higher authority.

Cutoff: Ensures that transactions are properly recorded in the period in which they occurred.

Disclaimer of opinion: A report from an auditor stating that the scope of the audit was restricted such that he is not in a position to express an opinion on the financial statements.

Disclosure: Ensures that account balances and related requirements are properly presented in the financial statements.

Documentation: An examination of an auditee´s documents and records to substantiate the information that is or should be included in the financial statements.

Existence: These assertions deal with whether assets, obligations, and equities included in the balance sheet actually existed.

External audit: A verification process by which an independent evaluation and appraisal is made of na organization´s financial statements.

GAAS: (Generally Accepted Auditing Standards) Ten audit standards developed by the American Institute of Certified Public Accountants which provide a framework for interpretation.

Independence: Term expressing the independent mental attitude an auditor must have such that an auditor´s professional judgement is not impaired by personal bias.

Information risk: The risk that reflects the possibility that information used to to determine business risk was inaccurate.

Inquiries of the client: The process of asking questions of the client and obtaining satisifactory answers those questions.

Internal audit: An audit performed by organizational personnel to

evaluate procedures for safeguarding assets and records and assist managers in appraising the organization's operational efficiency.

Management assertions: These are implied or expressed representations by management about the components of financial statements and are directly related to GAAP.

Materiality: The degree to which financial statements may be incorrect but not misleading.

Mechanical accuracy: Objective which is concerned that the general ledger accurately reflects with the details supported by subsidiary ledgers, journals, and schedules.

Observation: The process of watching the general flow of operations in order to obtain a working knowledge of the firm being audited.

Operational audit: A review of an organization's operating procedures to evaluates its efficiency and effectiveness.

Overall reasonableness: An audit objective that helps the auditor determine whether the account balances appear reasonable after considering the evaluation of all information considered.

Ownership: Ensures that assets nad liabilities recorded in the financial statements belong to the entity.

Physical examination: The actual inspection by the auditor of a tangible asset.

Qualified opinion: An opinion expressed by an auditor stating an audit was conducted but that he is not completely satisified that the financial statements are fairly presented.

Sufficiency: THe quality and quantity of a sample size selected when obtaining adequate competent evidence.

Timeliness: This refers to when aduit evidence was collected or to the period covered by the audit.

Unqualified opinion: An opinion expressed by an auditor stating that an audit was conducted IAW GAAS and that he is satisified that the financial statements present fairly the financial position of the firm.

Validity: This deals with the potential over/under statement of account balances.

Valuation: An assertion as to whether components of financial statements such as , assets, liabilities, equity, revenue, and expenses are stated at appropriate amounts.

MODULE E

INTRODUCTION TO INFORMATION SYSTEMS

Index . . . . . E - 1

Overview of Information Systems . . . . . E - 2

Learning Objectives . . . . . E - 3

Lesson I: Introduction to Information Systems . E - 5

A. What is an Information system. . . . . E - 5

B. What does an Information System Do . . . E - 6

C. Types of Information Management Systems . E - 6

D. Information System Benefits . . . . . E - 14

E. The Information System Environment . . . E - 16

Lesson II: Information and Management . . . . E - 18

A. Types of Management Information . . . . E - 18

B. Attributes of Information . . . . . E - 20

C. Sources of Information . . . . . E - 22

D. Problems with Information Sources . . . E - 23

Lesson III: Computers and Data Processing . . . E - 25

A. General Characteristics. . . . . E - 25

B. Classes of Computer Systems . . . . . E - 26

C. Major Elements of a System (Hardware) . . E - 28

D. Computer Software. . . . . E - 30

E. Database Management . . . . . E - 33

References E - 37

Glossary E - 38

Outline/Viewgraphs

MODULE E

INFORMATION SYSTEMS OVERVIEW

This module provides an introduction into the world of management information systems. The majority of the material contained in this section (content and thoughts) comes directly from the book Information Systems in Management by James A. Senn, published by Wadsworth Publishing Company, Belmont, California. The module is preceded by a list of learning objectives in which the student should be familiar upon completion of the associated classroom lecture. The purpose of the module is to introduce the student to information management in order that these systems may be employed into the working environment of the organization in which they work.

In reviewing this module keep in mind the key to success in information processing and management is the people - the users, analysts, programmers, and managers. The technology is usually highly reliable. People make the difference.

MODULE E
LEARNING OBJECTIVES

1. Be able to describe what an information system is.
2. Be able to describe what an information system does.
3. Be able to identify the different types of information systems.
4. Be able to identify and describe a Transaction Processing System.
5. Be able to identify and describe a Management Information System.
6. Be able to describe the three general types of reports generated by an Management Information System.
7. Be able to identify and describe a Decision Support System.
8. Be able to describe the five steps in using as Decision Support System.
9. Be able to identify and describe an Executive Support System.
10. Be able to identify and describe the seven features that the Executive Support System provides to executives.
11. Be able to identify and describe an Expert Support System.
12. Be able to identify and describe Group Decision Support Systems.
13. Be able to describe the different types of Group Decision Support Systems.
14. Be able to describe the benefits of an information system.
15. Be able to identify and describe the elements of the information system environment.
16. Be able to identify and describe the seven types of information important to top-level managers.
17. Be familiar with the attributes of information systems.

18. Be familiar with the sources and problems of information systems.
19. Be able to describe the general characteristics of computers.
20. Be able to distinguish between the different classes of computer systems.
21. Be able to identify and describe the major elements of a computer system.
22. Be able to describe the difference between operation system software and application software.
23. Be familiar with the different generations of programming languages.
24. Be able to explain the importance of database management.
25. Be able to state the objectives of database management.

MODULE E, LESSON I
INFORMATION SYSTEMS

Throughout the world information technology is changing the way people live. There are few areas of life which are untouched by the rapid development of computer and communications technology. The most significant event dealing with data and information is the introduction of the computer. Computers have become depended upon in almost every aspect of the average persons life. They are not just for big business. They can be found all around us; in ATM machines for dispensing cash around the clock, in grocery stores, cars, and in a host of electronic components. One could make quite a list of everyday products that use computer technology.

A. WHAT IS AN INFORMATION SYSTEM?

An information system is a set of people, equipment, data and procedures that work together to provide useful information. It is a system composed of various components which seeks a common objective of supporting an organization's activities. These activities include day-to-day business operations, communication of information, management of activities, and decision making based on the information obtained from the information system.

Reliance on information systems is the same in all areas of business. Take for example the banking industry. It relies heavily on information systems for making deposits, withdrawals, and processing loan applications. They are used to assist loan officers in deciding whether or not to lend money to an individual. Applicants are evaluated by checking consumer information such as their credit standing, income, current and long term debt, and employment status to such variables as the amount requested, duration of loan, and any collateral offered.

B. WHAT DOES AN INFORMATION SYSTEM DO?

"An information system performs three general activities:

- it accepts data from internal and external sources (input)
- it acts on the data to process information (it is an information-generating system)
- it outputs the information for the intended user" (REF 1, page 10).

Using the example of the banking industry as previously mentioned, data about the applicant, bank lending policies, and interest rates are input into the system. System procedures determine how credit worthy the applicant is and may assess the advisability of granting a loan. The system output may include a recommendation, loan conditions, and repayment terms. But, it is the loan officer who actually makes the decision based upon this and other information which is not factored into information system data base.

C. TYPES OF INFORMATION MANAGEMENT SYSTEMS.

"Information systems consist of categories of systems, each system having different characteristics. Some are aimed at supporting operating level activities, while others are oriented toward the most difficult decisions, often having an identification with top-level managers and the corporate boardroom." (REF 1, page) In this module we will take a brief look at each one of these information systems. Hopefully, you will gain an understanding of the differences between the systems and provide you an appreciation of how, when, and where each system can be appropriately employed in the business environment today.

There are six types of information management systems identified by James A. Senn in his book Information Systems in Management. They are "transaction processing, management information, decision support, executive support, work group support, and expert systems. All of them are aimed at

processing data for one of three reasons: to capture details of transactions, to enable people to make decisions, or to communicate information between people at different locations." REF 1, page 13) Following is a quick overview of each of these information systems.

1. **Transaction Processing System.**

The primary function of transaction processing systems is to substitute computer processing for manual record keeping procedures. The most important feature these systems provide is their ease in dealing with well structured and routine processes that computers easily handle.

Transaction processing follows a sequence of events which lead to each other or more transactions. Some events are processed immediately while other events are delayed until later where they are batch processed. Whichever the case, the sequence involves four steps beginning with data capture, followed by, transaction processing, file maintenance, and reporting. Data capture is simply the acquisition and recording of the pertinent data. In transaction processing, the data is validated and manipulated according to manual or preprogrammed, automated procedures which are designed to detect and/or correct potential errors. The next step, file maintenance, is where the records are modified to reflect the change in the database. For example, when an airline reservation is made, seat availability is modified to reflect the decrease in the number of seats remaining on that particular flight. The final event is reporting. Reporting is the output of a transaction, usually in the form of a hard copy report. Some common reports include action documents such as airline tickets or purchase orders, information documents such as a sales report, and edit reports which provide listing of invalid account numbers and transaction counts.

Common transaction processing applications include accounting, order entry, and inventory systems. Each application includes a combination of files or databases which

are modified or manipulated. Master files are maintained by ongoing transaction processing which reflect the most recent or current organizational activity. These characteristics are common among all transaction processing systems, regardless of their application.

2. **Management Information System.**

"A management information system is an integrated system for providing information to support the planning, control, and operations of an organization." (REF 1, page 501) The emphasis of management information systems is to assist in problem solving and the decision making process. It uses past, present, and projected information to support the managerial decision process in well structured recurring situations.

There are three general types of reports which are generated by a management information system. Following is brief description of each.

(1) **Regularly Scheduled Reports.** The decisions supported through management information systems are recurring and their information requirements are known well in advance. The regularly produced documents which provide the information, according to a predetermined format, are known as regularly scheduled reports. These reports may be prepared monthly, weekly, daily, or even hourly, depending on the decision process they affect.

(2) **Exception Reports.** Exception reports are those reports which are generated automatically when certain events or circumstances are above or below anticipated standards. They are useful for detecting conditions which are determined to be abnormal or out of the ordinary.

(3) **Unscheduled Reports.** Unscheduled reports are reports required due to a certain random changes in organizational or economic climates. They are prepared only when requested by managers. They are not automatically generated as are scheduled and exception reports.

3. **Decision Support System.**

A decision support system is an information system intended to assist managers and users who must formulate decision alternatives for situations that are not well structured. It is more of a problem oriented information system. As opposed to a management information system environment, the problems under study are constantly changing. Many of the conditions are due to a one shot, nonrecurring situation, or because the nature of the problem may change. This requires that the decision support system have much greater flexibility. The emphasis is on getting the right information to the manager quickly rather than efficiency in processing the information.

The objectives of decision support systems are accomplished through information retrieval and information generation. Information retrieval is the flexibility of a database system to retrieve information in unexpected and unique ways. This ability allows for the extraction of data needed to answer a question raised by management which resides in the organization's databases. The information generation capability is useful when new or unexpected problems arise, and the information which will allow the manager to address the problem does not exists. Using facts and data retrieved from the database or provided by users, the system can manipulate it such that alternative actions may be explored. This is sometimes referred to as the "**what if**" function. Existing factors in a model are replaced with new or projected ones and then is rerun to determine the impact and result.

There are five steps required in using a decision support system. They are:

(1) **Examine and Formulate Problem.** In this step one must investigate the circumstances surrounding the problem, determine the nature and scope of the problem, and access the implications of the problem.

(2) **Identify Pertinent Parameters and Variables.** This

requires discussing the cause and effect with users and determining which circumstances are fixed and which vary. One must also determine the possible interrelation between these variables.

(3) **Formulate Model.** A model is developed which contains specific parameters required to address the problem.

(4) **Test Model to Determine Suitability of Solution.** During this step data is supplied to test the model's capability to generate logical results.

(5) **Refine Problem.** In this step the model results are evaluated. Depending on the results, the model may be adjusted if additional refinement is needed.

Decision support systems aid decision makers confronted with situations that are not well structured. Because of this, they must be very effective and flexible. They also depend on the decision maker to determine what information he needs to understand the circumstances for which it is being use.

4. **Executive Support System.**

"Executive support systems are computer based systems that are compatible with the management styles and responsibilities of executives." (REF 1, page 568) Those responsibilities include the ability of executives to "understand and access situations quickly, facilitate the business of the organization, confront multiple problems together, set agendas, build networks, maintain a corporate view, and maintain an industry perspective." (REF 1, page 564) The executive support system provides the executive the capability to do just that. There are seven features that the system provides to ensure they meet the needs of executives. They are:

(1) **Browse Capability.** This provides the executive the capability to review specific desired information without the need to have formal reports prepared.

(2) **Multiple Presentation Formats.** Data presentation is a personal preference. An executive support system provides

the capability to change the format of given information at a given moment into tabular, graphic and or text.

(3) **Simple Interface.** "The most widely used executive support systems rely on simple yet powerful interfaces." (REF 1, page 571) This feature alone is one of the most attractive to executives because they do not want to be tied to a computer keyboard.

(4) **Analytical and Modeling Features.** Analysis often involves the building of models that interrelate important factors. An executive support system allows the executive to make an analysis of the market he is competing in by modeling and testing his assumptions using this feature.

(5) **Tailoring and Customizing.** "Just as executives differ, so do their information needs." (REF 1, page 573) The executive support system allows the tailoring of features to meet those preferences.

(6) **Access to External Data Sources.** Many executives rely on access to commercial data services. With the aid of executive support systems, executives can read headlines of events in the world. If they find an article of interest, a single key stroke will bring the details to his screen.

(7) **Data from Multiple Sources.** This feature allows the executive to draw information from multiple sources with ease.

Information is a key resource for all executives. With the use of executive support systems, executives are better able to facilitate the business of the organization, build networks of individuals addressing the same business area, and maintain corporate and industry perspectives. However, the system will only be used if it is designed in such a manner that it is desirable to the executive using it.

5. **Expert Support System.**

"An expert support system is a computer program that uses stored facts and rules to mimic a human expert." (REF 1, page 588) It is designed to support its user by recommending a

specific decision, suggesting actions, or making predictions. "Expert support systems typically deal with situations characterized by a great deal of uncertainty." (REF 1, page 588) It is an automated system that which captures the expertise of a human expert through the use of computer processing and software to duplicate the knowledge of an expert in a specific area.

There are three circumstances in which expert support systems are considered invaluable. They are;

(1) **To Capture Expertise.** Many firms realize they rely on key individuals for certain tasks because those persons have a unique background or talent for dealing with situations quickly and effectively. In these instances, specialists in expert systems called knowledge engineers work with the experts to learn and document how they evaluate situations. This knowledge is captured in a formal fashion and stored in a knowledge bases for future use.

(2) **To Minimize the Risk of Error.** Since managers in general fear the risks and potential losses due to error, they are extremely receptive to any assistance that can reduce this risk. Expert support systems provide that additional hedge against unwanted risk.

(3) **To Interrelate Large Volumes of Essential Information.** Expert support systems are very useful when large volumes of data, including qualitative details must be evaluated. Keeping track of details is hard enough, but incorporating them into an evaluation or a decision is almost impossible in some instances. Expert support systems invaluable in formulating and processing such information.

Expert support systems use computer storage and processing to capture and store data to mimic a human expert. These systems can be utilized in several roles, including providing expert advice to nonexperts, assisting experts, and by actually replacing experts in selected situations.

6. **Work Group Support System.**

A work group decision support system, like an individual decision support system, is intended to make it easier to deal with situations that are not well structured. The major difference is that it is designed to support decision makers working in a group rather than one individual. The system is interactive. Questions may be posed, information is retrieved, and information is generated in response to the needs of any or all group members. In many cases, the decision makers, although users of the information, are not hands-on users.

There are several types of Group Decision Support Systems. Depending on an organization's structure and the manner in which it's managers function, one may be more appropriate than the other. The general types are as follows:

(1) **Decision Room.** In this situation you find a boardroom or conference room equipped with special facilities that support group decision making. Seating is usually horseshoe or U-shaped so each individual can see each other. Work stations are positioned by each participant or near the group facilitator.

(2) **Linked Decision Room.** This alternative relies on a video conference in the group decision making process. It allows for two or more decision rooms, arranged as previously mentioned, to be linked together so that all participants see the same information simultaneously.

(3) **Remote Decision Network.** This alternative brings individuals together without the use of specially outfitted decision rooms. Group members do not come face to face, but instead are linked together through networks. This design ensures that each participant has access to pertinent databases and decision support software, usually through a central processor.

Group decision support systems are growing in importance in organizations as businesses seek ways to deal with the increasing complexities in today's market. The need for on-

line interaction is essential since there is a need for accommodating the many opinions, suggestions, and questions which arise in group problem-solving sessions.
Group decision support systems are currently being used for problem clarification, structuring, brainstorming, and evaluation of alternatives in many organizations today.

D. INFORMATION SYSTEM BENEFITS.

Information systems have the capability to provide three types of benefits to organizations. They include "gains in productivity, improvements in effectiveness, and a competitive advantage." (REF 1, page 40) Whether a particular benefit is realized depends upon the importance the management of a firm places on each.

"**Gains in Productivity**. Productivity is the efficiency or output of a task. Gains in productivity occur when more work can be completed with the same or fewer resources. In organizations, this relates to business processes, such as manufacturing goods or handling customer sales, as well as to the ability of managers to oversee a greater number of activities. For example, productivity improves when an individual increases the volume of sales orders that can be captured in a designated period of time. Thus when an employee uses a new method or technique to record 50 order transactions in an hour rather than 25, productivity is doubled." (REF 1, page 40)

Computer information systems enable employees to become more productive because they can handle a greater number of transactions, improve quality in the processing of transactions, and achieve these results in a more timely manner. For example, an employee entering orders through a personal computer or terminal system that is well designed is likely to complete many more order entry tasks - two, three, even four times more in the same interval of time as that of an equally qualified employee manually taking orders.

Improvements in Effectiveness. Effectiveness refers to the ability of an individual or an organization to do the things that need to be done. Individuals such as managers are judged effective when they repeatedly select actions that have the most desirable outcome and develop appropriate strategies to implement them. A manager who foresees situations that could turn into problems, and deals with the underlying causes before difficulties occur, is considered much more effective than one that continually solves problems which could have been prevented.

Information systems offer the potential for improvements in effectiveness by drawing on the rich database of details captured during transaction processing. Referring to the example above, if the data on a customer is stored in a database which is easily accessed, new orders can be expedited by eliminating the time to enter previous obtained but required information for processing the order.

Gaining a Competitive Advantage. The same systems that provide improvements in productivity and effectiveness are becoming increasingly more important in determining how organizations formulate their competitive strategies. "An information system application is considered strategic if it changes the way a firm competes." (REF 1, page) The interrelation between business strategy and the strategic use of computer-based information systems is slowly becoming inseparable. A perfect example is Federal Express. Their entry into the package transportation industry changed the nature of the industry permanently. Through its overnight delivery, it redefined the importance of time and the meaning of "fast." It also made accountability a new expectation for customers. Shippers and recipients alike want to be able to track their package from the time it is sent until the time it is delivered.

E. THE INFORMATION SYSTEM ENVIRONMENT.

To fully appreciate the capability and potential of information systems an understanding of the information system environment is required. "Four components comprise the environment: (1) the business environment, (2) the organization, (3) information systems architecture, and (4) information systems applications." (REF 1, page 48)

The Business Environment. "The foundation for all activities is the environment in which the organization operates." (REF 1, page 48) It influences the products and services the enterprise offers, how it chooses to compete, and the nature of the activities it performs in carrying out its day-to-day activities. Some of the elements that influence the organization include customers, competitors, suppliers, and regulatory agencies.

The Organization. People, facilities, and structure are the basic resources of any organization. Increasingly, we recognize the importance of using these resources in the most beneficial way. From the perspective of information systems, the objective is to provide the support that makes human resources as productive and effective as possible. The structure of an organization influences the flow of information and therefore the characteristics of information systems that support the individuals within that structure.

The Information System Architecture. "Architecture refers to the particular components in an organization's information systems environment and the manner in which the components fit together. The concern is whether the architecture inherent in the firm's combination of hardware, software, data, and communications resources can meet changing needs." (REF 1, pages 50-51)

Information Systems Applications. "Information systems application draw on the structure of hardware, software, data, and communications to capture, store, and process data in a

manner that meets individual and organization needs. Applications are collectively the component that users (employees, staff members, managers ,executives, customers, and suppliers) see most often. It is their reason for using the information system." (REF 1, page 52).

"Information systems underlie many of the activities that occur in business organizations and in society. Successful organizations have generally learned how to use information as an effective management tool, and they have developed information systems that are responsive to the needs of the individuals." (REF 1, page 30) They continue to play an increasing important role in the day-to-day activities and the planning that goes on within organizations. The challenge for information systems developers and users alike is to apply the capabilities of information systems to meet the needs of the organization today and tomorrow.

A. TYPES OF MANAGEMENT INFORMATION.

"Information is data presented in a form that is meaningful to the recipient. It has real or perceived value to the user and adds to what he or she already knows about an event or area of concern. It must tell the recipient something he or she does not already know or could not be predicted. In other words, it adds to knowledge but must be relevant for the situation in which it will be applied. The lack of knowledge, or absence of information about a particular area of concern is uncertainty. (REF 1, page 58)

Managers are more interested in usefulness of the information than in the way it is produced. The two types of information the manager generally needs can be categorized as accounting information and management information. Accounting information focuses specifically on the identification and reporting of income, financial status, and determining various business costs. Management information is viewed as a by-product of the accounting process. It uses the information obtained from the accounting process in a quantitative form to answer questions about the performance of the business operations and activities.

Information systems should inform managers, not overwhelm them. Managers, especially senior executives, do not routinely need or want extensive accounting detail. Summary information is preferred since they show the overall results and trends of interest. They also show comparison of planned and actual performance of divisions, departments, product areas, and so on. Some managers at the higher levels, do not have the time to deliberate over large amounts of detail, even in summary form. "Their pace is so rapid and the scope of activities in which they are involved is so broad that they must be able to pinpoint matters needing their attention. This reality

dramatically influences the nature of management information. Often qualitative as well as soft information (estimates, opinions, and incomplete specifications) can be very useful." (REF 1, page 59)

There are seven types of information which are important to top-level managers. They include;

1. **Comfort Information:** It keeps managers informed about current situations or achievement levels and allows the individual to know that performance is on track and in line with general expectations in an area or interest. Examples include yesterday's sales volumes, this week's hotel occupancy (management knowing the break-even point), number of customers served, and number of flights canceled or delayed.

2. **Status Information:** Also called progress information, it keeps managers abreast of current problems and crises as well as reporting advances to take advantage of opportunities that may disappear if not acted on. Examples include the progress on yesterday's labor negotiations, status of construction of new manufacturing facility, progress on a R&D project aimed at launching a new product, and competitor progress on a similar product.

3. **Warning Information:** This signals changes are occurring, in the form of emerging opportunities or as omens of trouble ahead that will affect the success of the firm, its products and services, or its long-term viability. Examples include significant price fluctuations in raw materials or energy, increasing frequency of quality control difficulties, higher-than-usual position vacancies or difficulty to hire qualified personnel at prevailing wage or salary, and the launching of a new product on test market by a key competitor.

4. **Planning Information:** This describes major developments and programs due to begin in the future. It includes assumptions on which plans are based or anticipated developments essential for the realization of established plans. Examples include predictions on the growth or shrink

of the organization's market, the market share the firm plans to capture over the next three years, the entry of new competitors or product substitutes, and breakthroughs in associated manufacturing technology.

5. **Internal Operations Information:** This information gives key indicators of how well the firm or individuals are performing. It is useful for reporting the overall health of an organization, subsidiary, division, or product. Areas in which actual performance does not match expectations are reported as exceptions. Examples include accumulated return on equity, percent share of market held by firm, and current sales for the month, quarter, or year plus the variance from planned sales.

6. **External Intelligence:** This is information, gossip, and opinions about activities in the environment of an organization. It includes a broad range of areas such as competitor and industry changes, financial market movement, and political-economic fluctuations or expected shifts. Examples include customer demands for new products or services, expert projections of behavior of the economy over the next six months, industry talk of impending competitor actions, the fallout from protective laws and legislation, and crop profiles for agricultural products used as raw materials.

7. **Externally Distributed Information:** This is information the chief executive wants to review before its release to stockholders or distribution to news media. Examples include quarterly corporate earnings report, accumulated contributions and funds raised through the annual campaign, and details of a newly developed public service program.

B. ATTRIBUTES OF INFORMATION.

"Information adds to relevant knowledge, reduces uncertainty, and supports the decision-making process in an organization. However, to be useful, information must have essential

attributes, both as individual items and as a set of information." The attributes of information are the characteristics that are meaningful to the user of each item of information.

Attributes of an **item** of information include:

Accuracy: Is the information true or false, correct or incorrect? Does it portray the situation or status as it really is? Inaccurate information may be treated as by a user as if it were accurate.

Form: Distinctions of form qualitative and quantitative, numerical and graphic, printed and displayed, summary and detail. Often the selection of one or the other alternate forms is dictated by the situation.

Frequency: Frequency is a measure of how often information is needed, collected or produced.

Breadth: Breadth defines the scope of the information. Some information may cover a large area of interest while other information be very narrow in scope. Usage determines the necessary breadth.

Origin: Information may originate from sources inside or outside the organization.

Time Horizon: Information may be oriented toward the past, current events or the future.

Attributes of a **set** of information include:

Relevance: Information is relevant if it is needed for a particular situation. Information needed once may not be relevant at all times. Likewise, information obtained "just in case it is needed" is not relevant.

Completeness: Complete information provides the user with all that needs to be known about a particular situation.

Timeliness: Timely information is available when it is needed and has not become outdated through delay." (REF 1, page 64)

C. SOURCES OF INFORMATION:

Is particularly important for managers to be aware of the many possible sources of information. Otherwise, they may overlook sources simply because they do not think of them when a problem arises or because they are unaware of their existence.

"Awareness of information is only one side of the issue. Managers should also be able to identify potential problems built into the information they acquire such as bias of the information provider, currency, fact verses opinion, and so on." (REF 1, page 68)

"Managing an organization requires both primary and secondary information. Primary information is that which must be gathered specifically for a particular problem. It is information that is being gathered for the first time for a specific party. Secondary information, on the other hand, has been already collected and stored in an accessible location." REF 1, page 69) Take for example oil. It can be reasonably expected that the Department of Energy maintains large files of information on foreign oil sources that would be useful to companies formulating long-range projections about the cost of oil and fuel. Secondary information, of course, may be biased or obsolete, or it may be unusable because of the form in which it was collected.

"Organization must use both kinds of information regularly for controlling internal operations and for monitoring or watching important developments outside the company. However, we cannot state conclusively that primary information is generally of higher value than secondary information, or visa versa, because organizations vary. The character of the industry or organization, coupled with the functional area (marketing, production, purchasing, and so on) in which the information is used, and the particular organizational style of management, are important in determining the usefulness of the type of information. Marketing managers, for example, may

rely heavily on research information about consumer wants or needs collected firsthand (primary information). A purchasing agent may rely more on information furnished by the federal government about expected trends in prices of materials or commodities (secondary information). (REF 1, page 70)

D. PROBLEMS WITH INFORMATION SOURCES.

There are many problems associated with information sources. These problems are represented the categories of impartiality, validity, reliability, consistency, and age.

Impartiality: To be an effective resource, information must not reflect any bias. Impartiality must be instilled in the information by the person collecting or processing the data. It is also up to the user of the information to utilize it the way it is intended to be used and draw only accurate inferences from the data.

Validity: Validity focuses on whether particular information is meaningful and relevant to the stated purpose. Does the information actually answer the question being addressed? Information, although accurate, may be considered invalid if it is not used in the manner for which it was intended.

Reliability: Reliability concerns the accuracy of the information received. Does the information present a true picture of a given event? If you are collecting data on an event, a survey of 100 companies will more likely provide more reliable and complete information than a survey of only ten companies.

Consistency: For information to be useful, we must be sure that the number and type of reporting units must be the same throughout. Before using any information, we should always be sure that it is consistent and that the factors on which it is based are the same for each part of the information.

Age: The age of information is an extremely important factor in determining its value. In most cases, the greater the age, the more questionable the value to a user. There are also three levels of problems when speaking of information systems. They are technical, semantic, and effectiveness.

Technical problems concern the accuracy of transmission of a set of symbols from the sender to the receiver. Was the information which was transmitted via electronic signal, to the receiver, printed or displayed as originally sent by the sender?

The semantic problem is concerned with how accurately the receiver understands and interprets the sender's meaning. How precisely do the transmitted symbols convey the desired meaning?

Effectiveness problems concern the success of the communication in producing the desired actions or conduct. Effective communications makes clear the intended meaning and results in the proper action being taken. How effectively does the received meaning affect behavior in the desired way?

These communication problems, the technical, semantic, and effectiveness problems, are important to consider in using information systems in management and cannot be overlooked.

"Information adds to knowledge and reduces uncertainty when provided in a meaningful form. It is characterized by the attributes of accuracy, form, frequency, breadth, origin, time horizon, relevance, completeness, and timeliness. Inappropriateness, or inadequacy, of any of these attributes diminishes the worth of the information." (REF 1, page 85)

MODULE E, LESSON III

COMPUTERS AND DATA PROCESSING

A. GENERAL CHARACTERISTICS OF COMPUTERS

There are few people today who are untouched by computers and information systems. They are an integral part of everyday life. "In business, computers are a fundamental tool for the office, the warehouse, on the manufacturing floor, in the customer's office, and even in the executive suite. In many corporations, two out of every three desks will include a personal computer or management work station." (REF 1, page 136)

In this lesson, we will examine the various components of computers. This will provide you with an understanding of what makes up a computer system and how these components work together to process data. Additionally, we will discuss the different classes of computer systems, emphasizing the circumstances under which each system should be considered for installation.

Computers come in many sizes and configurations but they all have the same basic characteristics. In general, computer systems contain four basic characteristics: hardware, software, procedures, and people. Each part is an integral of the system and must be present for effective and efficient processing of transaction and decision-making data. Let's discuss these basic characteristics.

Hardware. Hardware refers to the equipment and devices that actually process data. Singularly, the term may refer to a single piece of equipment, while in a collective sense hardware may mean all the equipment in a data processing operation. "Hardware is used to perform the functions of data entry, computation, storage, and output (presentation or display) of results." (REF 1, page 139) The specific hardware used for any individual data processing installation is referred to as a configuration.

Software. "Software is the general term describing programs of instructions, languages, and routines or procedures that make it possible for an individual to use a computer. In general terms, it is any prepared set of instructions that controls the operation of the computer system for computation and processing." (REF 1, page 139)

Procedures. "To be functional and effective, clear operating procedures are needed to define how computer resources and equipment are to be used to satisfy the needs of everyone using the system. Standard operating procedures set forth the normal day-to-day activities, and emerging procedures carefully describe steps to be taken in the event of hardware failure or other disasters." (REF 1, page 140)

People. The people are the final characteristic of computer-based data processing systems. They include the end-users, system-analysts/designers, programmers, operators, engineers, and the list continues. Because of the tremendous growth in data processing, there is an overwhelming demand for trained people to work in this field which will continue for years to come.

B. CLASSES OF COMPUTER SYSTEMS.

The word computer has evolved to describe one of several different classes of data processing systems. When they were first introduced for business applications, there were only large systems which often filled an entire room. With technology, many of those hugh beasts called computers systems have been replaced by more powerful desktop computers which process much more data in a fraction of the time, and cost hundreds of thousands of dollars less.

Today there are millions of computers installed around the world, and the number is growing by several million annually. These computers systems usually fall into one of following classes: personal computers, minicomputers, mainframe systems, and supercomputers.

Personal Computers or Microcomputers. These are computers that are small enough to sit on a desk, but not necessarily small in processing power. A microprocessor, in which the main processing circuitry is contained on one silicon chip, performs the computing. They have become more common in the business than the office copier.

Personal computers suitable for business use cost from $1000.00 to $15000.00, although some home versions can be purchased for as little as $100.00. These systems have all of the features of other classes of computers, although their storage capacities and processing speeds are generally lower. Yet today's personal computer has much greater processing power than larger systems a few years ago, and at a fraction of the cost. Considering the processing speed and storage capability with such a system, the price is extremely attractive.

Mid-range or Minicomputers. Mid-range computers are also small and powerful. They are also relatively inexpensive. Many cost less than a full size automobile ranging in price from $10,000.00 to $150,000.00. The mid-range computer system is designed for multiple users and provides greater speed and storage than microcomputers.

Many mid-range computers are stand-alone systems. They also serve important roles in office environments as work group systems and can also be used to communicate with much larger computers for transmitting and receiving data.

Mainframe Systems. Mainframe systems are large, general-purpose systems are traditionally associated with big business. They generally cost anywhere from hundreds of thousands of dollars to several million dollars each. Prices vary widely depending on whether they are medium-size or large-scale systems and to the composition of the different equipment that is attached to each system.

"These computers are very fast, able to execute millions of instructions in a single second. Because many secondary storage devices can be attached to extend main memory, storage

is virtually limitless." (REF 1, page 145) Being extremely flexible, the big systems are able to process programs written in many languages and are capable of doing processing for multiple users simultaneously.

Supercomputers. Supercomputers are systems that are recognized as the largest and fastest and the most expensive computers available to date. They are generally used for designing automobiles and airplanes, and used in weather forecasting and scientific research.

"Supercomputers are characterized by large memories, extremely rapid processing speeds, and multiple processors." (REF 1, page 145) They generally cost over 10 million dollars and are typically used in selected corporate and U.S. government research and development centers.

C. MAJOR ELEMENTS OF A COMPUTER SYSTEM (HARDWARE).

The computer can accept, hold, and execute instructions to manipulate data with amazing speed and accuracy. This data collected for processing must first be translated into a form that can be accepted by the computer system. Then it is input into the computer system through some type of device, processed by the central processing unit (CPU), held temporarily in secondary storage, if required, and then output to the user. All operations are electronic in the sense that switches, wires, and circuitry are controlled by electronic pulses or signals. However, the computer does not have its own brain. It is the computer program (software) that dictates what activities or operations will be performed and in what order. The physical equipment or hardware just provides the means.

The basic physical hardware elements in a computer system can be divided into the categories of input/output devices, the central processing unit (CPU), and secondary storage devices. All these elements together make processing data and producing output possible.

Input Devices. For data to be operated on by the central

processing unit, it "must be input to the system in a way the system can understand. This process is called data entry. Data recorded in symbols that humans can read are converted into electronic signals that the computer accepts. After conversion, the data is processed by the central processing unit." (REF 1, page 153)

Two ways in which data entry into the computer system is accomplished is through the use of direct entry input equipment and document-oriented input equipment.

Most organizations use the computer and direct entry input equipment. The most common devices in this category include video display terminals with keyboards, light pens, scanners, and the use of a mouse. There are also voice input devices although they are not as prevalent and widely used as the previous mentioned devices.

Central Processing Unit (CPU). The central processing unit is the main work unit of the computer system and the center of all control and processing tasks. It controls the processing and movement of data, and the execution of directed instructions. All other devices connected to the computer are through the use of the CPU and are under its control. The CPU accepts data and instructions from input units only when the central processor signals them to feed in data. Likewise the output units only print or display data when allowed to do so by the CPU. All computations performed by the various programs with the data is through the use of the central processing unit.

Output Devices. "Output devices transform the electronic pulses and signals from the central processing unit into results that people can use. the output may be displayed on CRT screens, printed on documents or paper, punched into cards, or displayed through photographic processes." (REF 1, page 167) Some of the most common output devices used today include CRT terminals, printers, plotters, audio response, as well as microfilm and microfiche units.

Secondary Storage Devices. Secondary storage devices are used to store data and instructions as output from a central processing unit. This allows for storage expansion when it is not feasible or desirable to store all data in the main memory of the central processor. The selection of a particular secondary storage unit depends on an organization's needs. The most common secondary storage devices include magnetic tapes, disks, and drums.

D. COMPUTER SOFTWARE.

Software is the computer programs that control the processing of data in a computer system. It is important to know about computer software because it controls how computers are used. Computer systems are virtually useless without software.

1. TYPES OF COMPUTER SOFTWARE.

There are two types of computer software: operating system software and application software.

Operating System Software. "The operating system is a group of programs that monitor and control all input/output and processing operations. As a software tool, it allocates and controls the hardware. Programs that make up the operating system are usually developed according to specifications provided by the computer manufacturers and supplied to purchasers. They are designed to make the best use of the components of each individual computer system." (REF 1, page 207)

Application Software. "When we think of computers, we focus on the tasks they perform: processing customer orders, making airline reservations, scanning the product codes on food packages at the grocery checkouts counter, or processing text using personal computers (word processing). Each of these are applications - the use of computers to complete a specific task. The software that makes these examples of processing possible is called application software." (REF 1, pages 209-

210)

Application software must interact with the operating system of the computer. As mentioned earlier, the operating system controls the use of the computer in accomplishing specific tasks. The application software ensures that the designated tasks are performed in the manner we wish them to be completed.

2. GENERATIONS OF PROGRAMMING LANGUAGE.

The increased demand for effective, efficient, and reliable computer software has caused more attention to be placed in the development of software languages. Experts divide this development of computer languages into five generations:

First Generation. The first generation language, also known as machine language, consists of the binary digits (0 and 1). Programmers using this language write all commands and instructions using strings of binary digits. Today, the only internal language the computer understands, whether a desktop personal computer or a large supercomputer, is machine language. However, programs are no longer written in machine language but rather are written in higher-level languages translated and translated into machine language.

Second Generation. Second generation language, better known as assembly language, is a special purpose computer program or translator that converts symbolic instructions in programs into machine-language instructions that can be executed by the computer system. "Some programmers still write programs in assembly language when there is a concern for peak execution efficiency or when intricate manipulations are needed. However, third and forth generation languages dominate computer software today, with fifth generation languages emerging." (REF 1, page 214)

Third Generation. Third generation language, also known as higher-level or procedural language is used to formulate computer programs by specifying the procedures or algorithms

that are to be executed. Procedural languages allow the programmer to state how to perform a task at a much higher level than assembly languages. They must also be translated into machine code so that the computer can understand. They include includes scientific languages such as FORTRAN, business languages as COBOL, and general-use languages, including BASIC.

Forth Generation. Fourth generation languages is a group of nonprocedural languages in which the emphasis is on what is to be done rather than how it should be done. Program specifications are developed at a higher level than third generation languages. The distinguishing feature is that the programmer does not have to specify each step to complete a processing task. However, "some forth generation languages include both procedural and nonprocedural elements, allowing programmers to balance ease of programming with efficiency of operations." (REF 1, page 214)

Fifth Generation. Fifth generation language is a category of computer languages that are just beginning to emerge. They are expected to use knowledge bases (collections of rules and facts in areas of interest) with rules and facts fed in that describe a problem. With this information they will arrive at a solution using artificial intelligence to associate rules, facts, and conditions rather than receiving a sequence of instructions.

"Computer-based systems consist of hardware, software, procedures, and people. Each element plays an important part in transaction data processing and in decision making activities. Hardware is the equipment that actually processes data, whereas software controls the processing within the system." (REF 1, page 196) Computer software has continued to develop through four generations with a fifth on the horizon. Computer systems will continue to emerge with further advances in technology as we enter the 21st century.

E. DATABASE MANAGEMENT

"Managing data is the key to successful management information support. Without proper management, vital data and essential information will not be available to support the operations of an organization. Similarly, poor management of data often results in loss of integrity and reliability in the data and information based upon it. Even if the hardware and software are well designed technically and operating properly, the value of the system will be limited if the underlying data are not reliable." (REF 1, page 328)

"Database management is the planning, organizing, and control of organization databases." (REF 1, page 330) The management of databases was once a technical issue of primary interest to information system professionals. However, it is becoming increasingly important throughout all types of organizations. Following are some of the reasons you should know about the management of databases:

Businesses store and use large quantities of data. Without proper management one may easily become inundated with volumes of data. Present as well as future uses of data need to be considered when formulating guidelines for the storage and use of data.

Data are a valuable resource that must be managed. Easy assess to and manipulation of data is invaluable to the organization. The ability to capture, validate and protect this data is of major concern to all users.

Poor data management adds complexity to management. Access to and reliability of data should simplify not complicate day-to-day operations and planning within the organization. Database management plays a key role in ensuring only essential, accurate data is utilized to perform these functions.

The users of data should influence its management. All users of data should play some role in the management of the database. This role may be simply commenting on the use of

data in a particular office or recommending major software changes which could result in the consolidation of certain functions and ultimately reducing overall costs.

A. OBJECTIVES OF MANAGING DATABASES.

"The only effective and efficient way to achieve the desired level of information systems support is through database management." (REF 1, page 332) The seven objectives of managing databases demonstrate the advantages that can be gained. They are as follows:

Avoiding Unnecessary Redundancy. Organizations rely on information systems more and more as additional system applications are implemented. Each application is designed to use its own transaction files perhaps because analysts are not aware that the same data exists elsewhere. The result is proliferation of data that is not in the interest of either the users or the organization. It is expensive to store this redundant data and data maintenance is both time consuming and costly. Good database management could curtail uncontrolled redundancy by accommodating the sharing of data across applications.

Providing Access Flexibility. Frequently managers and other users assume they can access information because they know the data is stored in a convenient computer database. Unfortunately, they often find that requests for such data cannot be met quickly. This is because the data may be in several different files and a program must be written to extract it in a usable form. Additionally, programmers may have other projects to complete which may take priority.

Providing Relatibility. This is the ability to define relationships between record types and being able to retrieve data based on those relationships. This makes it extremely important to describe the attributes of an entity when defining records.

Maintaining Data Independence. Data independence allows

for the extraction of data without placing constraints on the way the computer system stores the details. When a bit of information is required, the user should be able to obtain it without any forethought on where its located in the computer.

Allowing the Database to Evolve. The ability of the database to evolve is essential to change and growth within an organization. Changes can always be anticipated in areas such as records, physical storage structures, storage devices, programming languages, application programs, etc.. Change will never be eliminated but the key is to ease the difficulty of making modifications and upgrades to the system as it evolves.

Preserving Data Integrity. "Data integrity refers to the reliability of the data: Is the information accurate, and can it be believed?" (REF 1, page 336) File redundancy can easily lead to multiple updates which leads to data integrity problems. Integrity problems, which arise due to errors in data, can be substantially reduced by placing controls on data entry. As files are created or maintained, control checks will ensure incoming data conforms to predetermined specifications, prevent inaccurate data entry and eliminate many potential errors.

Ensuring Data Security. The primary concern with security is to provide and protect the rights of access to the organization's database. Unauthorized access may result in the retrieval, change, addition, or deletion of records. The objective is to prevent all unauthorized access to and use of the database, whether accidental on intentional.

Efficient database management involves the effective manipulation and integration of stored data in an automated environment. Benefits include highly efficient transaction processing, the facilitation of ad hoc retrievals, and the reduction of unnecessary and costly data redundancy.

The real challenge that faces major corporations and business today is not the ability to obtain computer-based information systems. They are very prevalent throughout

industry. The challenge is obtaining or developing one that suits the need of the customer but additionally and more important is the ability to manage this information system. The effective use of information systems is the ability to devise or obtain a system that fulfills the needs of the organization today and has the capability to easily expand to meet the needs of the future.

MODULE E
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MODULE E
GLOSSARY

1. **Application Software:** Software that is designed to perform a specific task or group of tasks.

2. **Central Processing Unit (CPU):** The main unit of the computer system which is the center of all control and processing tasks.

3. **Comfort Information:** Information which keeps managers informed about current situations or achievement levels.

4. **Database Management:** The planning, organizing, and control of organizational databases.

5. **Decision Support System:** An information system used to assist managers and users who must formulate decision alternatives for situations which are not well structured.

6. **Exception Reports:** Those reports which are generated automatically when certain events or circumstances are above or below anticipated standards.

7. **Executive Support System:** A computer based system that is compatible with the management style and responsibilities of the executive.

8. **Expert Support System:** A computer based system that uses stored facts and rules to mimic a human expert.

9. **Externally Distributed Information:** Information screened by an organization's chief executive before it is released to the general public.

10. **External Intelligence:** Information, gossip, and opinions about activities in the environment of an organization.

11. **Fifth Generation Languages:** A category of computer languages that arrive at a solution by using collections of rules and facts.

12. **First Generation Language:** A computer language, also known as machine language used by the central processing unit of a computer to execute instructions and process data.

13. **Forth Generation Languages:** A group of nonprocedural languages in which the emphasis is on what is to be done than how it should be done.

14. **Hardware:** The equipment and devices of a computer system that actually process data.

15. **Information:** Data presented in a form that is meaningful to the user.

16. **Information System:** A set of people, equipment, data, and procedures which seek a common objective of supporting an organization's activities.

17. **Input Device:** Any device used for submitting data or instructions to the computer for processing.

18. **Internal Operations Information:** Information which gives key indicators of how well the firm or individuals are performing.

19. **Mainframe Computers:** These are large, general purpose computer systems that are traditionally associated with big business which are very fast and are able to execute millions of instructions in seconds.

20. **Management Information System:** An integrated system for providing information to support the planning, control, and operation of an organization.

21. **Minicomputers:** A mid-range computer system designed for multiple users which provides greater speed and storage than personal computers.

22. **Operating System Software:** A group of software programs that monitor and control all input, output, and processing operations.

23. **Output Device:** Devices which transforms the electronic pulses and signals received from the processing unit of the computer and transforms them into an appropriate form for use by the end user.

24. **Planning Information:** Information about major developments and programs due to begin in the future.

25. **Personal Computer:** A desktop microcomputer which including home computers, labtop computers and small business computers.

26. **Second Generation Language:** A language also known as assembly language that converts symbolic instructions in programs into machine language instructions.

27. **Secondary Storage Device:** Devices used to store data and instructions as output from a central processing unit.

28. **Software:** The general term used to describe programs of instruction, languages, and routines or procedures that make it possible for an individual to use a computer.

29. **Supercomputers:** Computer systems which are recognized as the largest and fastest and the most expensive computers available to date.

30. **Status Information:** Information which keeps managers abreast or current problems and crises.

31. **Third Generation Language:** A software language, also known as procedural language, which is used to formulate computer programs by specifying the procedures or algorithms that are to be executed.

32. **Transaction Processing System:** A system which processes data about an organization's activities.

33. **Warning Information:** Information which signals changes are occurring, in the form of emerging opportunities or as omens of trouble ahead that may affect the success of an organization.

34. **Work Group Support System:** A computer based information system designed to assist a group of managers to collectively or individually formulate decision alternatives for unstructured situations.

TOTAL QUALITY MANAGEMENT

TQM

MODULE F TOTAL QUALITY MANAGEMENT (TQM)

INDEX 1

OVERVIEW (TQM) 2

LEARNING OBJECTIVES 3

LESSON 1 (TQM PHILOSOPHY) 4

A. What is quality? 4

B. What is Total Quality Management? . . 4

C. TQM Philosophy 5

LESSON 2 (TQM PROCESS) 7

A. Vision 7

B. Principles 8

C. Practices 8

D. Techniques and tools 9

E. Implementation 9

REFERENCES 10

FIGURES VF-1

ADDITIONAL READINGS 11

MODULE F

TOTAL QUALITY MANAGEMENT (TQM) OVERVIEW

This module addresses the concept of Total Quality Management (TQM). Each module will be preceded by a list of learning objectives that the student should be familiar with upon completion of the module and associated class discussions. The module will focus on the TQM philosophy and process.

Total Quality Management (TQM) is defined as the application of quantitative methods and human resources to control and improve:

1) Materials and services supplied to the organization

2) The processes resulting in products and services of the organization

3) Meeting the needs of the customer.

MODULE F

LEARNING OBJECTIVES

- Understand the definition of quality.
- Understand the concept of Total Quality Management (TQM).
- Be familiar with the two views of quality.
- Understand the difference between quality control and quality management.
- Be familiar with the quality improvement chain.
- Be familiar with Dr. Deming's 14 management principles.
- Understand the concept of TQM philosophy.
- Be familiar with the nine concepts in TQM philosophy.
- Be familiar with the TQM process.
- Understand what management vision is.
- Understand the basic TQM principles.
- Be familiar with TQM practices and how they interrelate to TQM techniques and tools.
- Understand TQM implementation.

MODULE F - LESSON 1

TOTAL QUALITY MANAGEMENT (TQM) PHILOSOPHY

A. What is quality?

There are various definitions of "quality". Basically, quality is defined by meeting the customer's needs and expectations. Whatever the product is or service being performed it must meet the customer's need or expectation in order to produce a quality product or service. Quality as defined by Tribus is "giving people what they have the right to expect." There are two views of quality which are: traditional and current. These are displayed in (Figure F-1).

B. What is Total Quality Management (TQM)?

Quality management evolved from the concept of quality control. Quality control is defined as "the regulatory process through which we measure actual quality performance, compare it to standards, and act on the difference." [Juran 64] Quality control has traditionally focused on the production process. It's aim is the continuous improvement of all areas of the organization. This is a total process that encompasses the entire organization from the top down. Gibson defines it as "a process for change and improvement in everything: products, services and all work processes." The key to TQM is to involve every employee in the quality improvement process. Everyone working together as a team

integrate ideas and suggestions from each other which contribute to the improvement process. The goal of TQM is to "achieve a continuous improvement effort that permeates every process, product and service of an organization." [Thomas 90]

See quality chain and Deming's 14 principles in Figures F-2 and F-3.

C. TQM PHILOSOPHY.

"Total Quality Management (TQM) is a management philosophy for running organizations." [Thomas] TQM is an attitude or overall vision toward the life and purpose of an organization. The TQM philosophy is built on the following nine concepts:

1. Meeting customer requirements. Everyone in an organization has a customer be it the person in the next department or the external client.

2. Achieving continuous improvement in all processes and products is the goal. Focus is on improving work methods and reducing rework which leads to better productivity.

3. Making decisions is supported by the graphical and statistical tools of TQM.

4. Communication throughout the organization is with a "common language" based on facts and statistical data.

5. Quality is the job of literally every single person in the organization, from top management to the most junior employee. "The TQM philosophy stresses that the key to process improvement is the infinite human potential of an organization's people."

[Ishikawa, 85]

6. Processes, not people, are the root of quality problems. [Deming, 82]

7. Quality is a product of prevention, not inspection. "Quality is produced by real-time employee inspection of their own work and correction of problems as they are found." [Deming, 82]

8. Quality is top management's responsibility. Top management must actively participate to make TQM successful. [Deming, 86]

9. Quality before profits. Profits are a result of providing a quality product or service.

MODULE F - LESSON 2

TOTAL QUALITY MANAGEMENT (TQM) PROCESS

A. OVERVIEW.

TQM is the process of continuously improving performance at every level of responsibility. Improvement in all areas, such as, cost , quality, schedule and suitability. TQM demands commitment and discipline in every facet of the organization and relies heavily on people and their involvement. This process is comprised of vision, principles, practices and techniques and tools.

TECHNIQUES & TOOLS

PRACTICES

PRINCIPLES

VISION

B. VISION.

The vision of management must be continuously focused on the goals and objectives of the organization. The vision must provide continuity to decisions and actions. It must also recognize the challenges of change to both the internal and external environment. The organization's vision must guide management into the future.

C. PRINCIPLES.

TQM is comprised of many principles. These principles "define the fundamental concepts that shape and guide TQM." They serve as basic rules for the decision making process and a framework to form expectations and judge behavior. The following are some basic TQM principles:

1. Continuous process improvement.
2. Knowledge of the process.
3. Focus on the user.
4. Commitment.
5. Top-down implementation.
6. Constancy of purpose.
7. Total organization involvement.
8. Teamwork.
9. Investment in people.

D. PRACTICES.

TQM practices are used to implement the guiding principles and to demonstrate and reinforce TQM behavior through systematic and continuous application. The following are some fundamental practices of TQM:

1. Planning and goal setting.
2. Promoting improvement.
3. Communication.
4. Skill-building.
5. Resource optimization.

E. Techniques.

There are many techniques and tools used in the TQM process. Theses are defined as "technical methods employed in the course of practicing TQM." They provide systematic procedures for accomplishing specific tasks and are employed only as needed. These techniques and tools are associated closely with the procedures mentioned in the preceding discussion. They are presented and displayed in the following diagram. (See Figure F-4)

F. IMPLEMENTATION.

Once the organization has decided to commit to the TQM philosophy, then the process should be implemented. TQM implementation provides a structure for TQM and a methodical approach to TQM. It also "establishes a consistent approach to process improvement."

MODULE F - TQM

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TWO VIEWS OF QUALITY

TRADITIONAL VIEW	CURRENT POSTURE
● PRODUCTIVITY AND QUALITY ARE CONFLICTING GOALS.	● PRODUCTIVITY GAINS ARE ACHIEVED THROUGH QUALITY IMPROVEMENTS.
● QUALITY DEFINED AS CONFORMANCE TO SPECIFICATIONS OR STANDARDS.	● QUALITY IS CONFORMANCE TO CORRECTLY DEFINED REQUIRMENTS SATISFYING USER NEEDS.
● QUALITY MEASURED BY DEGREE OF NONCONFORMANCE.	● QUALITY IS MEASURED BY CONTINUOUS PROCESS/PRODUCT IMPROVEMENT AND USER SATISFACTION.
● QUALITY IS ACHIEVED THROUGH INTENSIVE PRODUCT INSPECTION.	● QUALITY IS DETERMINED BY PRODUCT DESIGN AND IS ACHIEVED BY EFFECTIVE PROCESS CONTROLS.
● SOME DEFECTS ARE ALLOWED IF PRODUCT MEETS MINIMUM QUALITY STANDARDS.	● DEFECTS ARE PREVENTED THROUGH PROCESS CONTROL TECHNIQUES.
● QUALITY IS A SEPARATE FUNCTION AND FOCUSED ON EVALUATING PRODUCTION.	● QUALITY IS A PART OF EVERY FUNCTION IN ALL PHASES OF THE PRODUCT LIFE CYCLE.
● WORKERS ARE BLAMED FOR POOR QUALITY.	● MANAGEMENT IS RESPONSIBLE FOR QUALITY
● SUPPLIER RELATIONSHIPS ARE SHORT TERMED AND COST ORIENTED.	● SUPPLIER RELATIONSHIPS ARE LONG TERM AND QUALITY ORIENTED.

FIG. F-1

THE CHAIN REACTION FOR QUALITY IMPROVEMENT

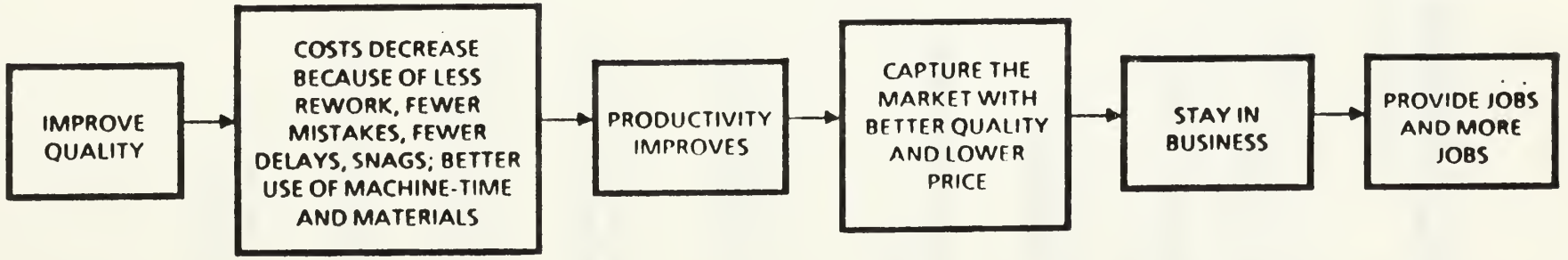


FIG. F-2

DR. DEMING'S

14 MANAGEMENT PRINCIPLES

The 14 points apply anywhere, to small organizations as well as to large ones, to service industry as well as to manufacturing. They apply to a division within a company.

1. CREATE CONSTANCY OF PURPOSE TOWARD IMPROVEMENT of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

2. ADOPT THE NEW PHILOSOPHY. We are in the new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

3. CEASE DEPENDENCE ON INSPECTION TO ACHIEVE QUALITY. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

4. END THE PRACTICE OF AWARDING BUSINESS ON THE BASIS OF PRICE TAG. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.

5. IMPROVE CONSTANTLY AND FOREVER THE SYSTEM of production and service, to improve quality and productivity, and thus constantly decrease costs.

6. INSTITUTE TRAINING ON THE JOB.

7. INSTITUTE LEADERSHIP. THE AIM OF SUPERVISION SHOULD BE TO HELP PEOPLE and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production worker.

8. DRIVE OUT FEAR, so that everyone may work effectively for the company.

9. BREAK DOWN BARRIERS BETWEEN DEPARTMENTS. People in research, design, sales and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.

10. ELIMINATE SLOGANS, EXHORTATIONS AND TARGETS FOR THE WORK FORCE asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus beyond the power of the work force.

11. ELIMINATE WORK STANDARDS (QUOTAS) on the factory floor. Substitute leadership. ELIMINATE MANAGEMENT BY OBJECTIVE. Eliminate management by numbers, numerical goals. Substitute leadership.

FIG. F-3

DR. DEMING'S
14 MANAGEMENT PRINCIPLES

12. REMOVE BARRIERS that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means ABOLISHMENT OF THE ANNUAL OR MERIT RATING of management by objective.

13. Institute a vigorous program of EDUCATION ans self-improvement.

14. Put everybody in the company to work to accomplish the transformation. THE TRANSFORMATION IS EVERYBODY'S JOB.

FIG. F-3

TQM TECHNIQUES AND TOOLS

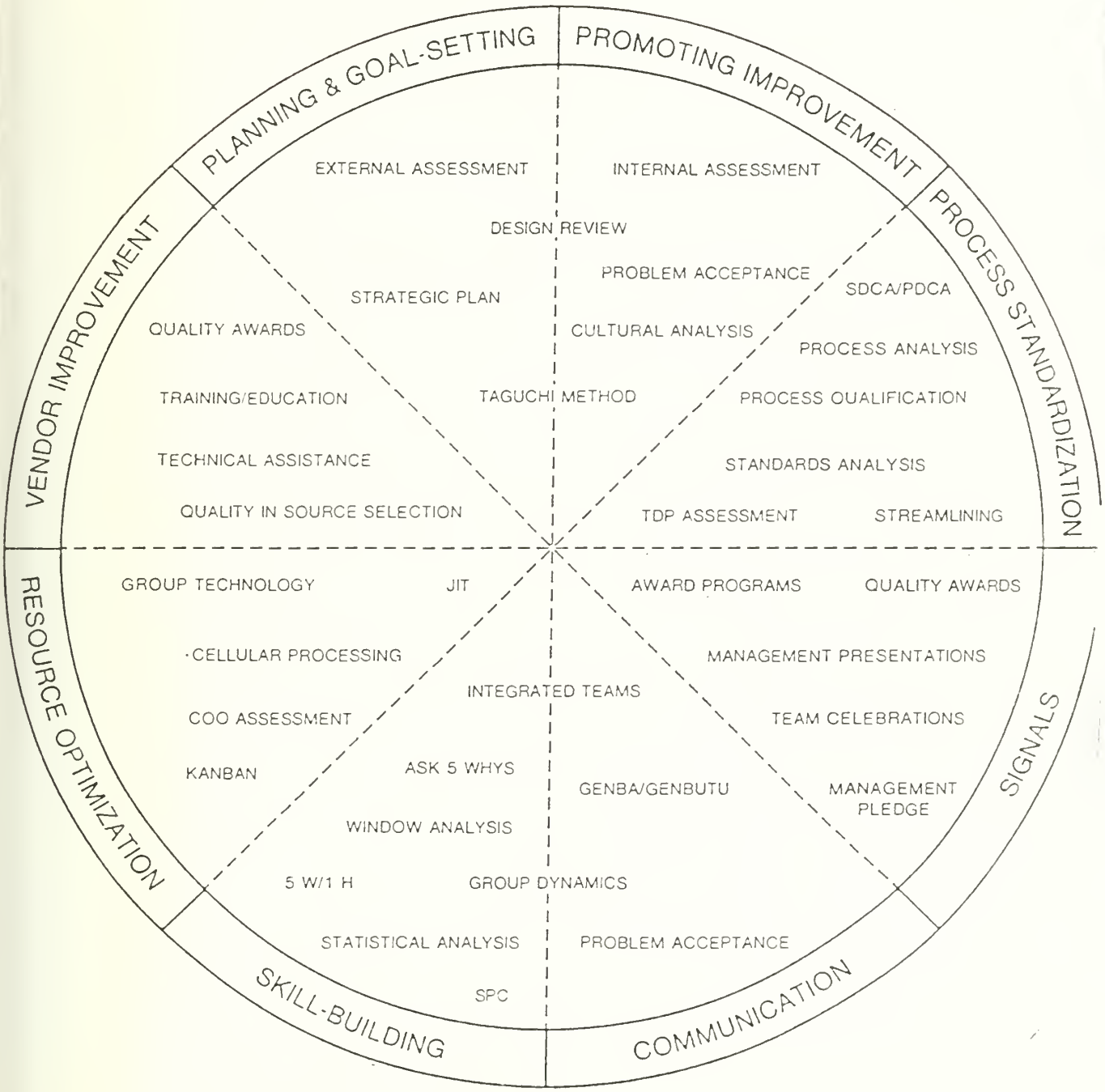


FIG. F-4

APPENDIX B

SYNOPSIS

The Instructors' Guide is comprised of six subject areas which contain subject area objectives, course outline with lecture notes, classroom viewgraphs and an additional readings list.

INSTRUCTOR GUIDE
TABLE OF CONTENTS

- MODULE OUTLINES

- VIEWGRAPHS

INSTRUCTOR'S GUIDE
COURSE OVERVIEW

This course is designed to provide a fundemental approach to financial management for non-financial manager, foreign military officers. Financial management is "the planning, acquisition and utilization of funds in order to maximize the efficiency anf value of the enterprise."[Ref. 2, pg. 7] It is important to note that there are "financial implications in virtually all business decisions".[Ref. 2, pg. 7]

The manager must have some financial knowledge in order to analyze financial information and make good decisions based on the analysis for their own specialized interests. This course is designed to give the non-financial manager a basic knowledge of financial and managerial tools in order to enhance or improve his or her abilities to make specialized decisions. The course will address the following subjects:

Module A: Accounting

Module B: Budgeting

Module C: Management Fundementals

Module D: Auditing

Module E: Management Information Systems (MIS)

Module F: Total Quality Management (TQM)

INSTRUCTOR'S GUIDE

MODULE A - ACCOUNTING

TABLE OF CONTENTS

I. TABLE OF CONTENTS 2

II. MODULE OUTLINES WITH LECTURE NOTES 3

A. LESSON 1 - FINANCIAL ACCOUNTING 3
B. LESSON 2 - COST ACCOUNTING 8
C. LESSON 3 - MANAGERIAL ACCOUNTING 10

III. VIEWGRAPHS VA-1

MODULE A - OUTLINE
WITH LECTURE NOTES

ACCOUNTING

** NOTE: Address the concept of accounting as a means by which financial information is formalized, standardized and provided to various users. Stress the point that accounting is a tool.

I. ACCOUNTING DEFINITION: A system for measuring the results of business activities and communicating those measurements to interested users.

II. ACCOUNTING PROCESSES

A. FINANACIAL ACCOUNTING

1. DFN: The accounting for assets, equities, revenues and expenses of a business. Primarily concerned with the historical reporting of the financial position and operations of an entity to external users on a regular, periodic basis.

B. COST ACCOUNTING

1. DFN: A sub-field of accounting that records, measures and reports information about costs. A cost is a sacrifice of resources - cash, a promise to pay, or the expiration of the value of an asset. Cost accounting systems provide information for internal uses (managerial accounting) and external uses (financial accounting).

C. MANAGERIAL ACCOUNTING

1. DFN: Reporting designed to enhance the ability of management to do its job of decision making, planning and control.

** NOTE: Use viewgraphs VA-1 through VA-2

MODULE A - LESSON 1 OUTLINE
FINANCIAL ACCOUNTING

A. Objectives of Financial Reporting {use viewgraph VA-3}

1. Financial reporting should provide information useful for making rational investment and credit decisions.

2. Financial reporting should provide information to help investors and creditors assess the amount, timing and uncertainty of cash flows.

3. Financial reporting should provide information about the economic resources of a firm and the claims on those resources.

4. Financial reporting should provide information about a firm's operating performance during a period.

5. Financial reporting should provide information about how an enterprise obtains and uses cash.

6. Financial reporting should provide information about how management has discharged its stewardship responsibility to owners.

7. Financial reporting should include explanations and interpretations to help users understand the financial information provided.

B. Primary Accounting Statements

1. Balance Sheet {use viewgraph VA-4}

a. Definition: The balance sheet presents a snapshot of the investments of a firm (assets) and the financing of those investments (liabilities and shareholder's equity) as of a specific time.

b. Accounting equation {use viewgraph VA-5}:

ASSETS = LIABILITIES + SHAREHOLDER'S EQUITY

c. Concepts:

1) Asset classification {use viewgraph VA-6}
+ Current

+ Non-current

2) Liability classification {use viewgraph VA-7}
+ Current
+ Non-current

3) Owner's Equity valuation and disclosure {use viewgraph VA-8}
+ Capital
+ Retained Earnings

** NOTE: Use viewgraph VA-9 to explain the relationship of the three aforementioned concepts

d. Dual effects of transactions {use viewgraph VA-10}

1) T-Accounts

** Note: Use viewgraph VA-10 to show the effect of debits and credits.

2. Income Statement

a. Definition: The income statement provides a measure of the operating performance of a firm for some particular period of time. {use viewgraph VA-11}

b. Income Statement equation {use viewgraph VA-12}

NET INCOME = REVENUES - EXPENSES

c. Measurement principles

1) Revenue recognition
+ Definition: Revenues measure the net assets (assets less liabilities) that flow into a firm when goods and services are sold or services are rendered.
+ Revenues are measured by the cash or cash-equivalent vale of assets received from customers.

2) Expense recognition
+ Definition: Expenses measure the net assets used up in the process of generating revenues.
+ Expenses measure the assets consumed in generating revenue.

d. Performance Measure Approaches {use viewgraph VA-13}

1) Cash basis: Revenues from selling goods and providing services are recognized in the period when cash is received from customers.

2) Accrual basis: Recognizes revenues when goods are sold or services are rendered. Costs incurred are reported as expenses in the period when the revenues that the costs helped produce are recognized. Thus accrual accounting attempts to match

expenses with associated revenues.

3. Statement of Cash Flows

a. Definition: Reports the impact of a firm's operating, investing and financing activities on cash flows during a period of time. {use viewgraph VA-14}

b. Activities

1) Operations

+ Definition: Cash flow from operations indicates the extent to which operating activities have generated more cash than has been used.

+ Components

- {use viewgraph VA-15}

2) Investing

+ Definition: The acquisition of noncurrent assets, particularly property, plant, and equipment represent a major ongoing use of cash.

+ Components

- {use viewgraph VA-15}

3) Financing

+ Definition: A firm obtains cash from short- and long- term borrowing and from issues of capital stock. Cash is used to pay dividends to shareholders, to repay short- or long-term borrowing, and to reacquire shares of outstanding capital stock.

+ Components

- {use viewgraph VA-15}

** NOTE: use viewgraphs VA-15 through VA-17 to explain the relationships of the statement of cash flows with the balance sheet and income statement.

c. Use of Information from Cash Flow Statements

1) Impact of operations on liquidity

2) Relations among cash flows from operations, investing and financing activities

MODULE A - LESSON 2 OUTLINE
COST ACCOUNTING

I. Definition: The subfield of accounting that records, measures and reports information about costs. {use viewgraph VA-18}

Cost Definition: A sacrifice of resource.

II. Principles {use viewgraph VA-19}

A. Cost Accumulation

1. Transform inputs into outputs. {use viewgraph VA-20}
2. Merchandising organizations {use viewgraph VA-21}
   a. Acquire inventory in finished form and market it
3. Manufacturing organizations {use viewgraph VA-22}
   a. Transform raw material into finished products
   b. Reflect in Work-In-Process account
   c. Basic inventory formula {use viewgraph VA-23}
      {BB + TI = TO + EB}
4. Service organizations {use viewgraph VA-24}
   a. Cost flows similar to manufacturing
   b. Do not create physical inventories

B. Cost Allocation {use viewgraph VA-25}

1. A proportional assignment of a common cost to cost objects.

** Note: Use viewgraph VA-26 to address the various common costs and typical allocation bases associated with them.

2. Methods
   a. Allocate costs to responsibility centers {use viewgraph VA-27}
   b. Identify the cost objects
   c. Accumulate the common cost
   d. Select an allocation base for the common cost
   e. Allocate costs to units produced
      1) Overhead is charged to Work-In-Process according to predetermined allocation rate.
      2) Must consider costs and benefits.

** NOTE: Use viewgraph VA-28 to summarize cost terms and VA-29 to summarize the cost flows in a manufacturing firm.

III. Cost Accounting Methods {use viewgraph VA-30}

A. Job Order Costing {use viewgraph VA-31}

1. The accounting task in job costing is to measure the costs of producing each job.

2. Used when units or batches of units are easily identifiable as separate units.

3. Methods {use viewgraph VA-32}
   a. Account for materials
      1) Materials inventory
      2) Indirect materials to Manufacturing Overhead
   b. Account for labor
      1) Use time cards
      2) Indirect labor to Manufacturing Overhead
   c. Account for Manufacturing Overhead
      1) Other overhead items included
      2) Actual overhead costs applied using some allocation base.

4. Cost flows
   a. Transfers to Finished Goods inventory
   b. Transfers to Cost of Goods Sold

** NOTE: Use viewgraph VA-33 to summarize the cost flows in a job-order costing system.

B. Process Costing {use viewgraph VA-34}

1. An accounting system that is used when identical units are produced through an ongoing series of uniform production steps.

2. Costs are allocated by department and then allocated to units produced.

3. Methods {use viewgraph VA-35}
   a. Unit costing {use viewgraph VA-36}
   b. Equivalent units
   c. FIFO {use viewgraph VA-37}
   d. Weighted Average {use viewgraph VA-38}

** Note: Use viewgraph VA-39 to summarize the process costing flows.

C. Job Order vs Process Costing {use viewgraph VA-40}

1. In job costing, costs are accumulated by department and job.

2. In process costing, costs are accumulated only by department and then averaged over the units produced.

** NOTE: Use viewgraph VA-41 to explain the differences between job-order and process costing.

MODULE A - LESSON 3 OUTLINE
MANAGERIAL ACCOUNTING

I. Managerial accounting definition: An accounting system designed to enhance the ability of management to do its job of decision making, planning and control. {use viewgraph VA-42}

II. Variance Analysis {use viewgraph VA-43}

A. Basic Concepts {use viewgraph VA-44}
1. Standards - A benchmark or norm.
2. Standard cost - The anticipated cost of producing and/or selling a unit of output; it is a predetermined cost assigned to goods produced.

B. Sources {use viewgraph VA-45}
1. Variable manufacturing costs
   a. Materials
   b. Labor
   c. Variable Overhead
2. Fixed manufacturing costs
3. Mixed costs

** NOTE: Use viewgraphs VA-46 through VA-50 to help the student visualize variable and fixed cost patterns, to summarize variable and fixed cost behaviors and to address mixed costs.

C. Variances {use viewgraph VA-51}

1. Price variance
   a. Difference between actual and budgeted costs
   b. Caused by changes in cost of material inputs to production.
2. Efficiency variance
   a. Difference between actual and budgeted results
   b. Caused by the difference between inputs that were

expected per unit of output and the inputs that were actually used.

III. Cost Areas {use viewgraph VA-52}

A. Direct Materials
   1. Price variance
   2. Efficiency variance

B. Direct Labor
   1. Labor price variance
   2. Labor efficiency variance

C. Variable manufacturing overhead
   1. Price variance
   2. Efficiency variance

D. Fixed manufacturing costs {use viewgraph VA-53}
   1. Price variance
   2. Production volume variance

** NOTE: Use viewgraphs VA-54 and VA-55 to summarize and exemplify the variance concepts}

MODULE A
REFERENCE LIST FOR VIEWGRAPHS

Ideas for viewgraphs (VA-1 to VA-17) were taken from the following sources:

Davidson, S., Stickney, C., and Weil, R.L. Financial Accounting, 5th ed., The Dryden Press: Chicago, 1988.

Garrison, R.H. Managerial Accounting, 5th ed., Irwin: Homewood, Ill., 1988.

Ideas for viewgraphs (VA-18 to VA-41) were taken from the following sources:

Deakin, E.B., and Maher, M.W. Cost Accounting, 2nd ed., Irwin: Homewood, Ill., 1987.

Garrison, R.H. Managerial Accounting, 5th ed., Irwin: Homewood, Ill., 1988.

Rayburn, L.G. Principles of Cost Accounting, 4th ed., Irwin: Homewood, Ill., 1989.

Ideas for viewgraphs (VA-42 to VA-55) were taken from the following sources:

Garrison, R.H. Managerial Accounting, 5the ed., Irwin: Homewood,Ill., 1988.

Deakin, E.B., and Maher, M.W. Cost Accounting, 2nd ed., Irwin: Homewood, Ill., 1987.

ACCOUNTING

A SYSTEM FOR MEASURING THE RESULTS OF BUSINESS ACTIVITIES AND COMMUNICATING THOSE MEASUREMENTS TO INTERESTED USERS.

ACCOUNTING PROCESSES

- FINANCIAL
- COST
- MANAGERIAL

FINANCIAL REPORTING

OBJECTIVES

1. PROVIDE INFORMATION USEFUL FOR MAKING RATIONAL INVESTMENT AND CREDIT DECISIONS.

2. PROVIDE INFORMATION TO HELP INVESTORS AND CREDITORS ASSESS THE AMOUNT, TIMING AND UNCERTAINTY OF CASH FLOWS.

3. PROVIDE INFORMATION ABOUT THE CEONOMIC RESOURCES OF A FIRM AND THE CLAIM ON THOSE RESOURCES.

4. PROVIDE INFORMATION ABOUT A FIRM'S OPERATING PERFORMANCE DURING A PERIOD.

5. PROVIDE INFORMATION ABOUT HOW AN ENTERPRISE OBTAINS AND USES FUNDS.

6. PROVIDE INFORMATION ABOUT HOW MANAGEMENT HAS DISCHARGED ITS STEWARDSHIP RESPONSIBILITY TO OWNERS.

7. INCLUDE EXPLAINATIONS AND INTERPRETATIONS TO HELP USERS UNDERSTAND THE FINANCIAL INFORMATION PROVIDED.

ANY COMPANY

BALANCE SHEET

ASSETS

CURRENT ASSETS	$50,000	
Cash	10,000	
Accounts Receivable	20,000	
Total Current Assets		$ 80,000
FIXED ASSETS		
Plant & Equipment		100,000
TOTAL ASSETS		$180,000

LIABILITIES

CURRENT LIABILITIES		
Accounts Payable	$20,000	
Wages Payable	12,000	
Total Current Liabilities		$ 32,000
LONG-TERM LIABILITIES		
Mortgage Payable		50,000
Total Liabilities		$ 82,000

OWNERS' EQUITY

Common Stock	$ 20,000
Retained Earnings	78,000
Total Owners' Equity	$ 98,000
TOTAL LIABILITIES & OWNERS' EQUITY	$180,000

BASIC ACCOUNTING EQUATION

ASSETS = LIABILITIES +

OWNERS' EQUITY

ASSETS

AN ITEM THAT HAS THE ABILITY OR POTNTIAL TO PROVIDE FUTURE BENEFITS TO A FIRM. ASSETS ARE ECONOMIC RESOURCES. THEY CAN BE EITHER:

+ CURRENT

+NONCURRENT

LIABILITY

A CREDITOR'S CLAIM ON THE ASSETS OF A FIRM. THEY CAN BE EITHER:

+ CURRENT

+ NONCURRENT

OWNERS' EQUITY

+ CONTRIBUTED CAPITAL

+ RETAINED EARNINGS

ASSETS, LIABILITIES & EQUITY RELATIONSHIPS

ASSETS = LIABILITIES + OWNERS' EQUITY

ASSETS = LIABILITIES + CONTRIBUTED CAPITAL + RETAINED EARNINGS

ASSETS = LIABILITIES + CONTRIBUTED CAPITAL + R.E. + NET INCOME - DIVIDENDS

T-ACCOUNTS

ASSETS ACCOUNTS

OPENING BALANCE

(Any increase)	(Any decrease)
Debit (DR.)	Credit (CR.)

ENDING BALANCE

LIABILITY ACCOUNTS

OPENING BALANCE

(Any decrease)	(Any increase)
DR.	CR.

ENDING BALANCE

OWNERS' EQUITY ACCOUNTS

OPENING BALANCE

(Any decrease)	(Any increase)
DR.	CR.

ENDING BALANCE

ANY COMPANY

INCOME STATEMENT
For Year Ending December 31, 199X

REVENUE		
Sales		$ 100,000
LESS COSTS		
Cost of Goods Sold	$ 30,000	
GROSS MARGIN		$ 70,000
LESS EXPENSES		
Administration Expense	$ 5,000	
Business Expense	2,000	
TOTAL EXPENSE		7,000
NET INCOME		$ 63,000

INCOME STATEMENT

EQUATION

NET INCOME = REVENUES + EXPENSES

PERFORMANCE MEASURES

+ CASH BASIS

+ ACCRUAL BASIS

STATEMENT OF

CASH FLOWS

+ OPERATIONS

+ INVESTMENT

+ FINANCE

STATEMENT OF CASH FLOWS

COMPONENTS

OPERATIONS

CASH RECEIVED FROM SALES	(-)	CASH PAID FOR OPERATING GOODS	=	CASH FLOW FROM OPERATIONS

INVESTING

CASH RECEIVED FROM SALES OF INVESTMENTS/PP&E	(-)	CASH PAID FO ACQUISITION OF INVESTMENTS/PP&E	=	CASH FLOW FROM INVESTMENTS

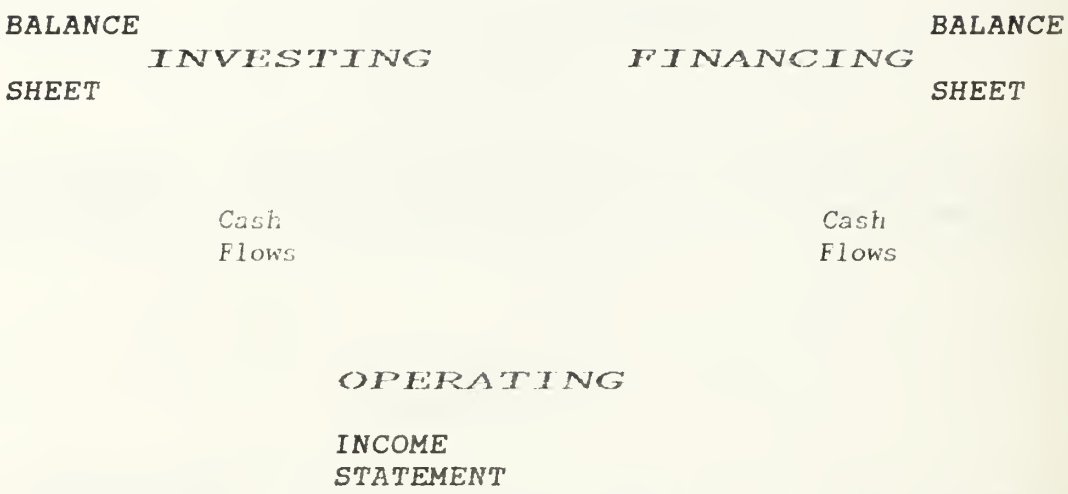
FINANCING

CASH RECEIVED FROM ISSUE OF DEBT OR CAPITAL STOCK	(-)	CASH PAID FOR DIVIDENDS AND REACQUISITION OF DEBT OR CAPITAL STOCK	=	CASH FLOW FROM FINANCING

NET CHANGE IN CASH

CASH FLOW FROM OPERATIONS	(+ or -)	CASH FLOW FROM INVESTING	(+ or -)	CASH FLOW FROM FINANCING

CASH FLOW
INTERACTIONS



ANYWHERE CORPORATION

STATEMENT OF CASH FLOWS
FOR YEAR 199X

OPERATIONS:		
Net Income	$ 30,000	
Additions:		
Depreciation expense not using cash	12,000	
Increased Accounts Payable	10,000	
To Suppliers of Merchandise	5,000	
To Other Suppliers	1,000	
Increased Salaries Payable	1,000	
Subtractions:		
Increased Accounts Receivable	(45,000)	
Increased Inventory	(12,000)	
CASH FLOW FROM OPERATIONS		$ 2,000
INVESTING		
Acquisition of Buildings & Equipment		($100,000)
FINANCING		
Dividends Paid		(6,000)
Proceeds from Long-Term Bonds		120,000
CASH FLOW FROM FINANCING		$114,000
NET CHANGE IN CASH FOR YEAR		$16,000

COST ACCOUNTING

THE SUBFIELD OF ACCOUNTING THE RECORDS, MEASURES AND REPORTS INFORMATION ABOUT COSTS.

PRINCIPLES

+ COST ACCUMULATION

+ COST ALLOCATION

INPUT TO OUTPUT TRANSFORMATION

MERCHANDISING

INPUTS	PROCESS	OUTPUTS
MERCHANDISE	MARKETING	GOODS
LABOR	GOODS	SOLD
CAPITAL		
OVERHEAD		

MANUFACTURING

INPUTS	PROCESS	OUTPUTS
MATERIALS	CONVERTING	GOODS
LABOR	MATERIALS INTO	SOLD
CAPITAL	FINISHED GOODS	
OVERHEAD		

SERVICES

INPUTS	PROCESS	OUTPUTS
LABOR	PROVIDING	SERVICES
CAPITAL	SERVICES	SOLD
OVERHEAD		

MERCHANDISE CASH FLOW

Accounts Payable

		(1)	18,000
		(2)	2,000

Merchandise Inventory

BB	800[a]		
(1)	18,000	(3*b*)	11,800
(2)	2,000		
EB	9,000[b]		

Cost of Goods Sold

(3*b*)	11,800

Marketing and Administrative Costs

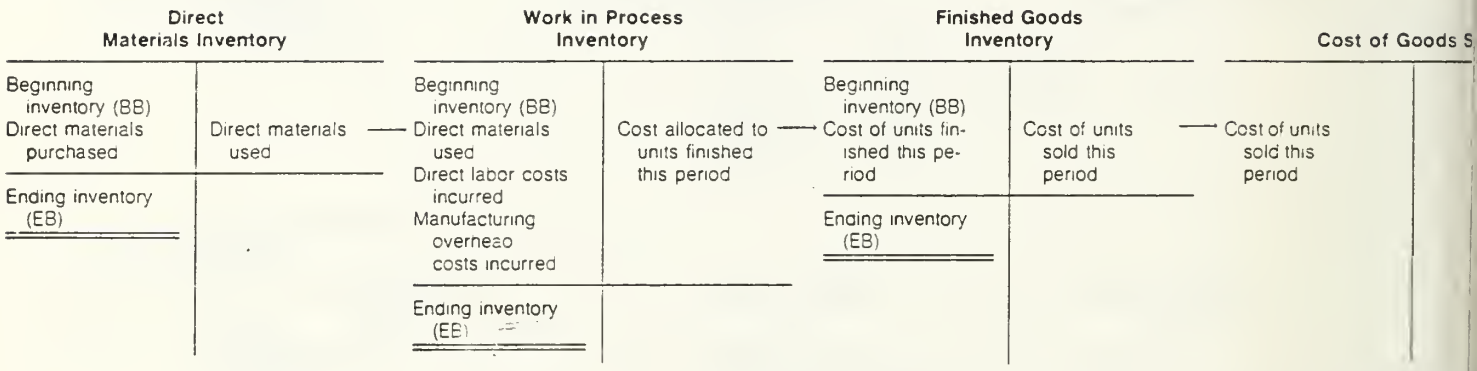
(4)	5,000

Note: BB = Beginning balance, and EB = Ending balance.

[a] Beginning inventory consists of 100 units at $8 ($7 purchase price plus $1 transportation-in).

[b] Ending inventory consists of 900 units at $10 each.
The 900 units is equal to the 100 units in beginning inventory plus the 2,000 units purchased and less the 1,200 units sold.
The $10 price per unit is the $9 purchase price plus $1 transportation-in.

MANUFACTURING COST FLOWS



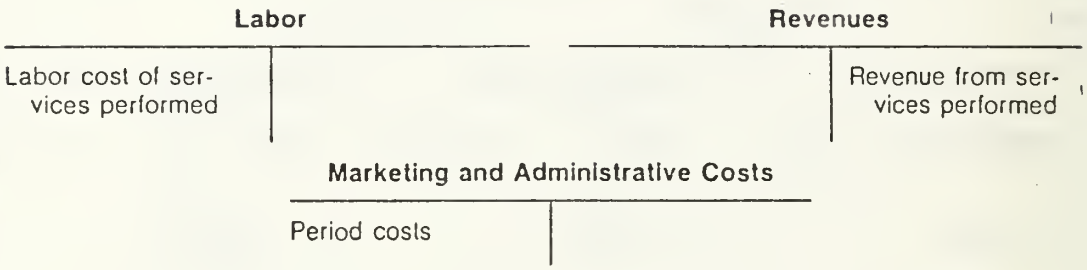
BASIC INVENTORY

FORMULA

BEGINNING BALANCE	+	TRANSFERS IN	=	TRANFERS OUT	+	ENDING BALANCE
(BB)		(TI)		(TO)		(EE)

SERVICES

COST FLOWS



COST ALLOCATION

A PROPORTIONAL ASSIGNMENT OF A COMMON COST TO COST OBJECTS.

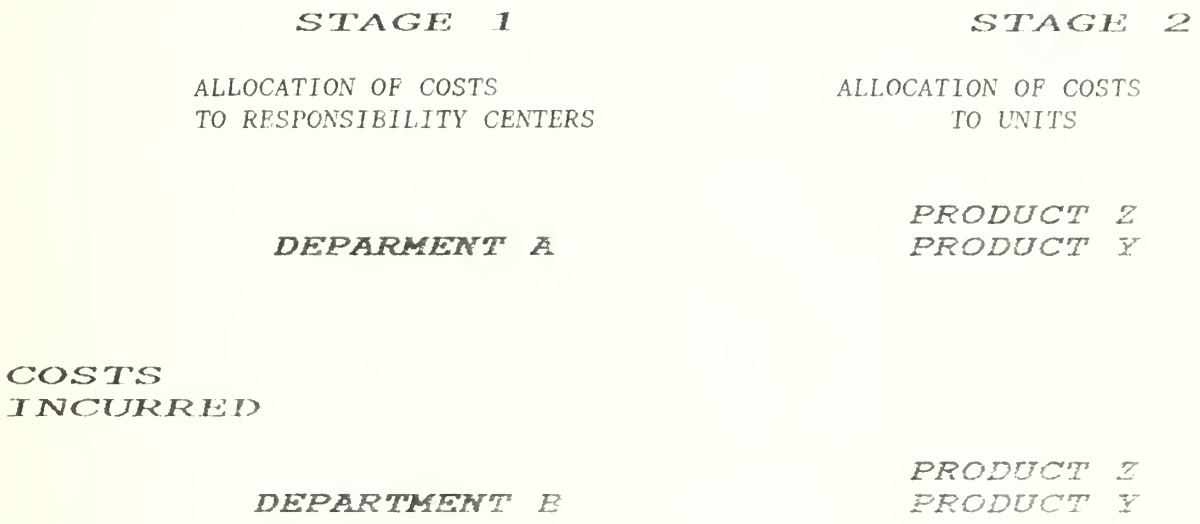
COMMON COSTS

ALLOCATION BASES

	COMMON COST	ALLOCATION BASE
LABOR RELATED	Supervision	Number of Employees
		Payroll dollars
	Personal Services	Number of Employees
MACHINE RELATED	Equipment Depreciation	Machine-hours
	Equipment Maintenance	Number of machines
		Machine-hours
SPACE RELATED	Building Rental	Space occupied
	Building Insurance	Space occupied
	Heat & A/C	Volume occupied
	Interior Bldg Maintenance	Space occupied
SERVICE RELATED	Materials Handling	Quantity/Value of Matl.
	Indirect Materials	Value of Direct Matl.

COST ALLOCATION

STAGES



STAGE 1 : Allocates costs to Responsibility Centers.

STAGE 2 : Allocates Responsibility Center costs to units.

A SUMMARY OF COST TERMS

Manufacturing costs (also called product costs)

Direct materials

Materials that can be physicially and conveniently traced into a product (such as wood in a table).

Direct labor

Labor cost that can be physically traced to the creation of a product in a "hands on" sense (such as assembly line workers in a plant).

Manufacturing overhead

All costs of manufacturing a product other than direct materials and direct labor (such as indirect materials, indirect labor, factory utilities, and depreciation of factory buildings and factory equipment.)

Prime cost

Conversion cost

Nonmanufacturing costs (also called period costs)

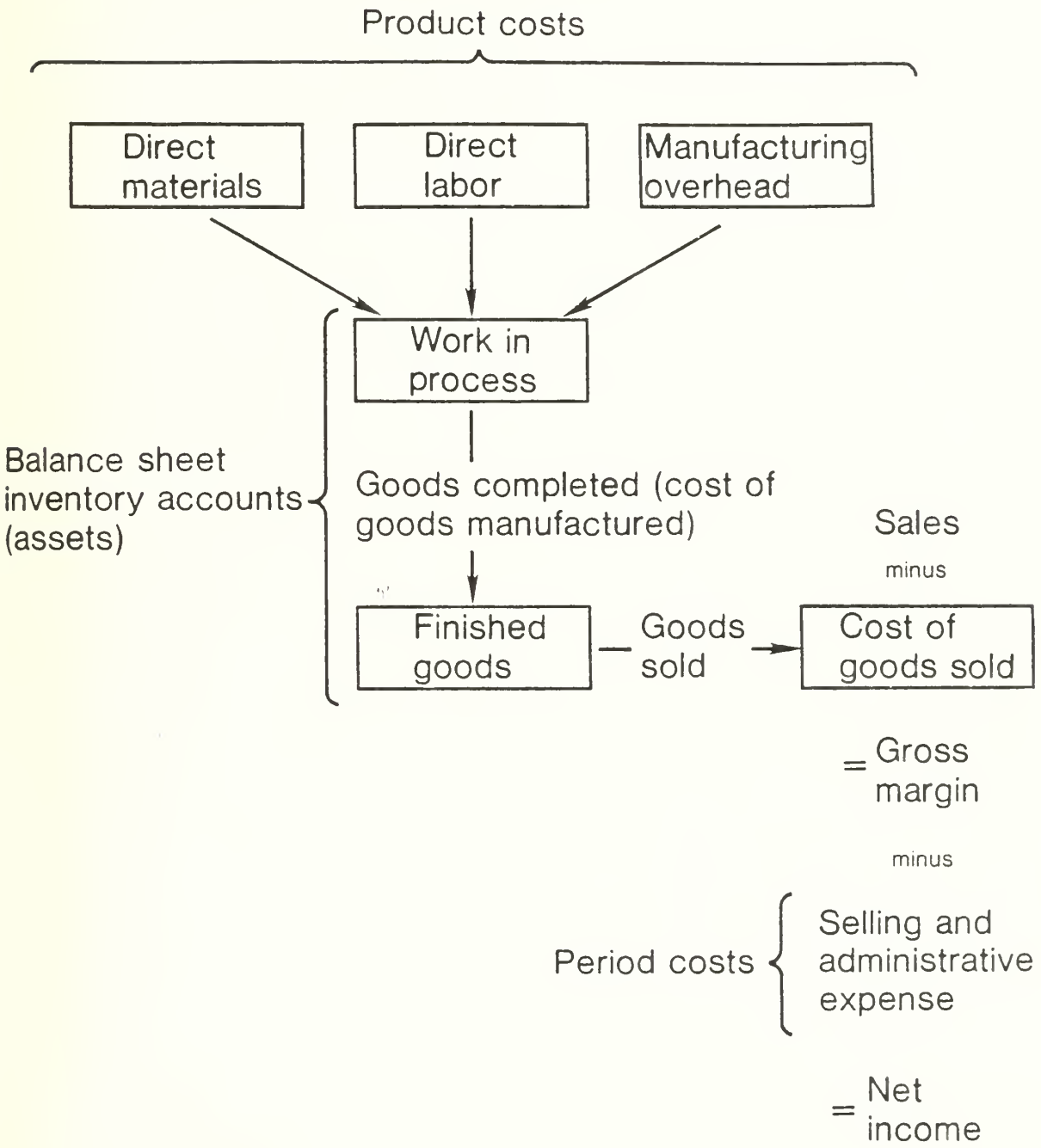
Marketing or selling costs

All costs necessary to secure customer orders and get the finished product or service into the hands of the customer (such as sales commissions, advertising, and depreciation of delivery equipment and finished goods warehouses).

Administrative costs

All costs of general administration of the company *as a whole* (such as executive compensation, executive travel costs, secretarial salaries, and depreciation of office buildings and office equipment).

COST FLOWS IN A MANUFACTURING FIRM



COST ACCOUNTING

METHODS

+ JOB ORDER COSTING

+ PROCESS COSTING

JOB ORDER

COSTING

+ MEASURE COSTS OF PRODUCING JOB

+ SEPARATE UNITS PRODUCED

JOB ORDER COSTING

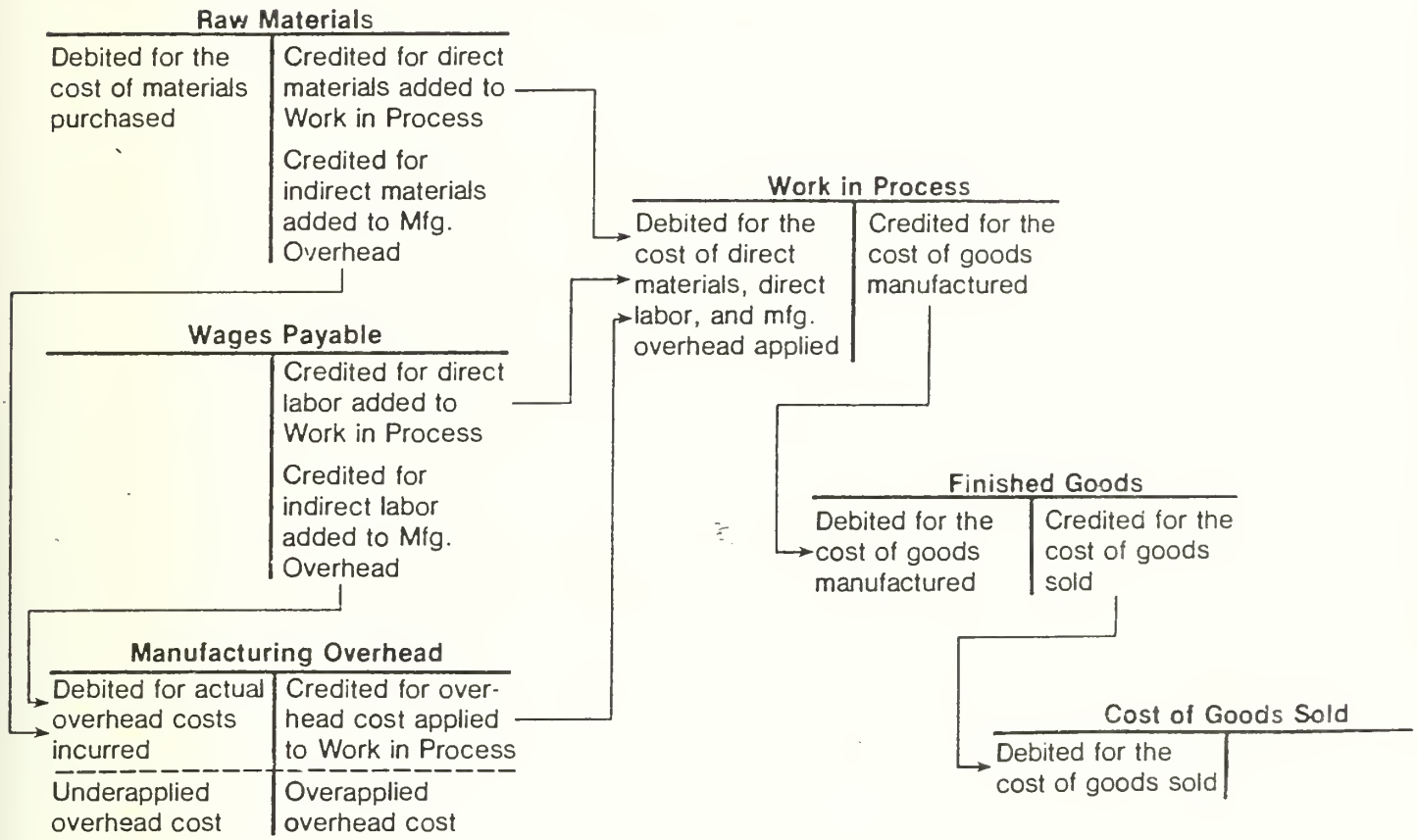
METHODS

+ ACCOUNT FOR MATERIALS

+ ACCOUNT FOR LABOR

+ ACCOUNT FOR MANUFACTURING OVERHEAD

COST FLOWS IN A JOB-ORDER COSTING SYSTEM



PROCESS COSTING

+ IDENTICAL UNITS PRODUCED

+ ONGOING SERIES OF UNIFORM PRODUCTION STEPS

PROCESS COSTING

METHODS

+ UNIT COSTING

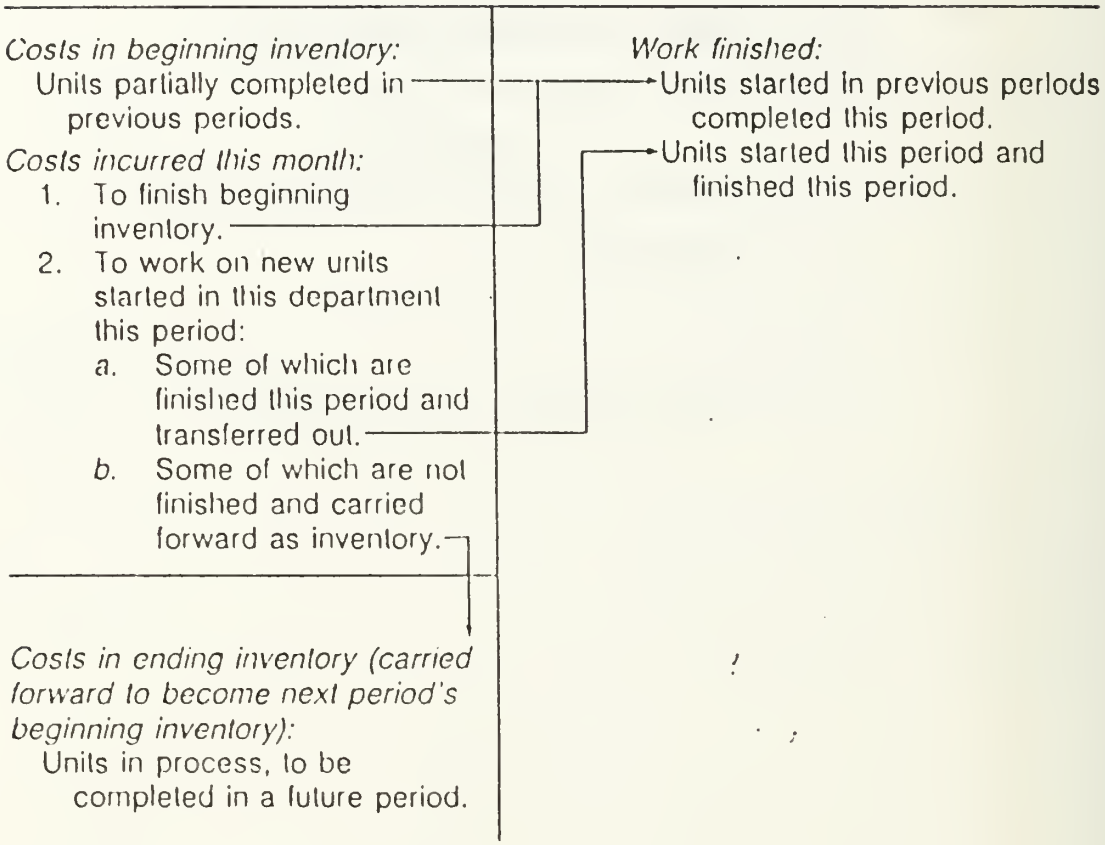
+ EQUIVALENT UNITS

+ FIRST IN, FIRST OUT (FIFO)

+ WEIGHTED AVERAGE

WORK IN PROCESS INVENTORY

MANUFACTURING



COST FLOWS

FIFO METHOD

ANYWHERE CORP.
MIXING OPERATION

WORK IN PROCESS (CONVERSION)

		Costs transferred out:	
Beginning Inventory	2000	Costs already in Beginning Inventory	2000
		Current period costs to complete beginning inventory	4100
Current period costs	30,000	Costs of units started and completed	10,000
Ending Inventory	15,000		

FINISHED GOODS INVENTORY

*16,100

***TOTAL COST TRANSFERRED OUT OF WORK IN PROCESS INVENTORY**

COST FLOWS

WEIGHTED AVERAGE METHOD

ANYWHERE CORP.
MIXING OPERATION

WORK IN PROCESS (DIRECT MATERIALS)

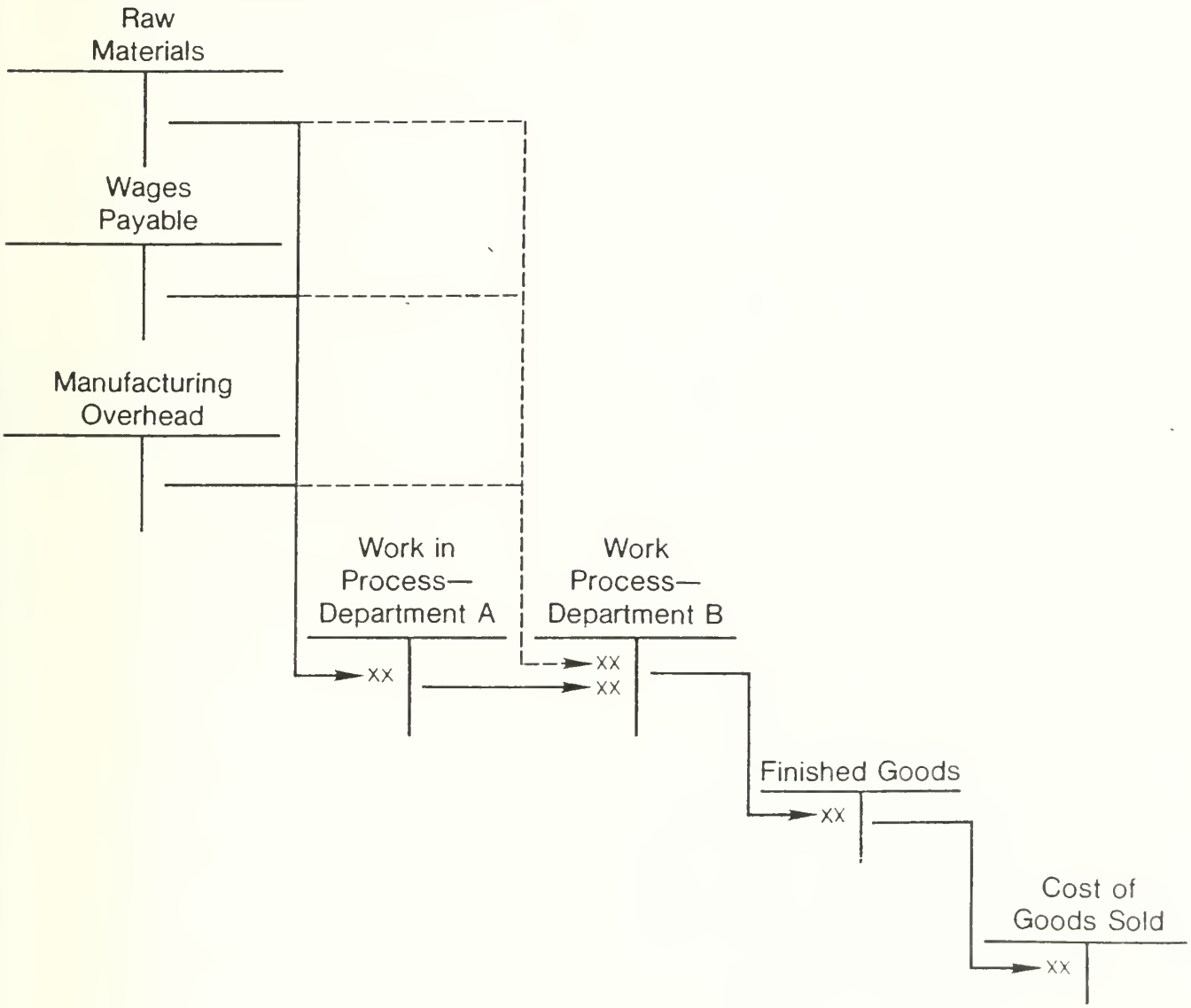
Beginning Inventory	1500		Cost transferred out:
		50,000	42,000
Current perid costs	48,500		
Ending Inventory		8,000	

WORK IN PROCESS (CONVERSION)

Beginning Inventory	2000		Cost transferred out:
		*30,000	25,000
Current period costs	28,000		
Ending Inventory		5,000	

***TOTAL COSTS TO BE ACCOUNTED FOR.**

Process Costing Flows



JOB ORDER

VS

PROCESS

+ JOB ORDER – COSTS ACCUMULATED BY DEPARTMENT AND JOB

+ PROCESS – COSTS ACCUMULATED ONLY BY DEPARTMENT THEN AVERAGED OVER THE UNITS PRODUCED

DIFFERENCES BETWEEN SYSTEMS

Since production flows in a continuous stream in a process costing system, work is department oriented rather than job oriented.

JOB-ORDER COSTING

1. Many different jobs are worked on during each period, with each job having different production requirements.

2. Costs are accumulated by individual job.

PROCESS COSTING

1. A single product is produced either on a continuous basis or for long periods of time. All units of product are identical.

2. Costs are accumulated by department.

MANAGERIAL ACCOUNTING

AN ACCOUNTING SYSTEM DESIGNED TO ENHANCE THE ABILITY OF MANAGEMENT TO DO ITS JOB OF DECEISION MAKING, PLANNING AND CONTROL.

VARIANCE ANALYSIS

+ USED TO MEASURE DIFFERENCES

+ COST ANALYSIS TOOL

BASIC CONCEPTS

+ STANDARD — BENCHMARK OR NORM

+ STANDARD COST — PREDETERMINED COST ASSIGNED TO GOODS PRODUCED

VARIANCE SOURCES

+ VARIABLE MANUFACTURING COSTS

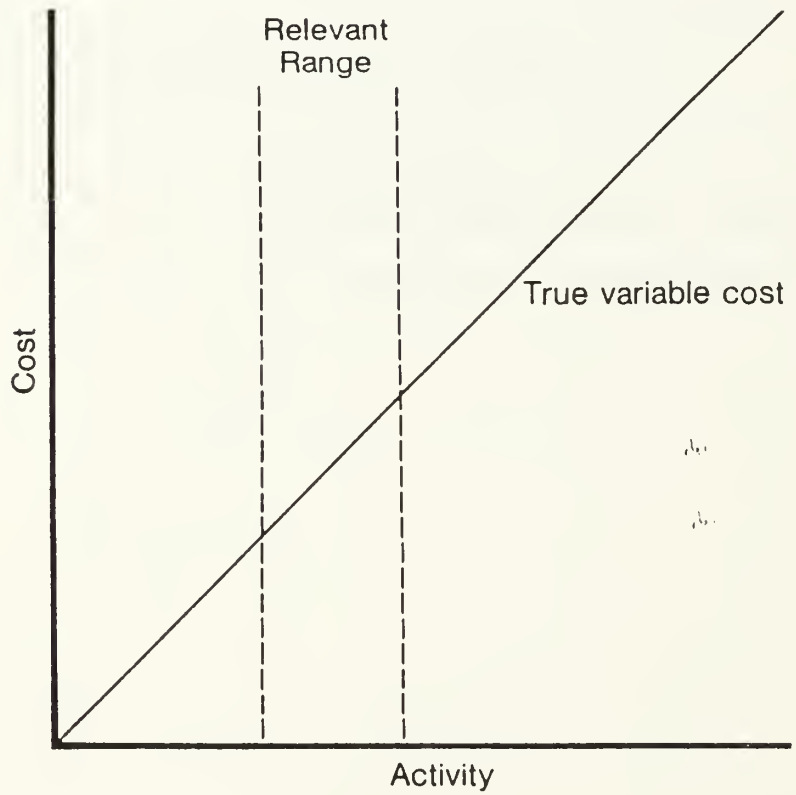
+ FIXED MANUFACTURING COSTS

VARIABLE

COST PATTERNS

A VARIABLE COST CHANGES IN TOTAL IN DIRECT PROPORTION TO CHANGES IN THE LEVEL OF ACTIVITY.

A VARIABLE COST IS CONSTANT ON A PER-UNIT BASIS.



VARIABLE COST BEHAVIOR

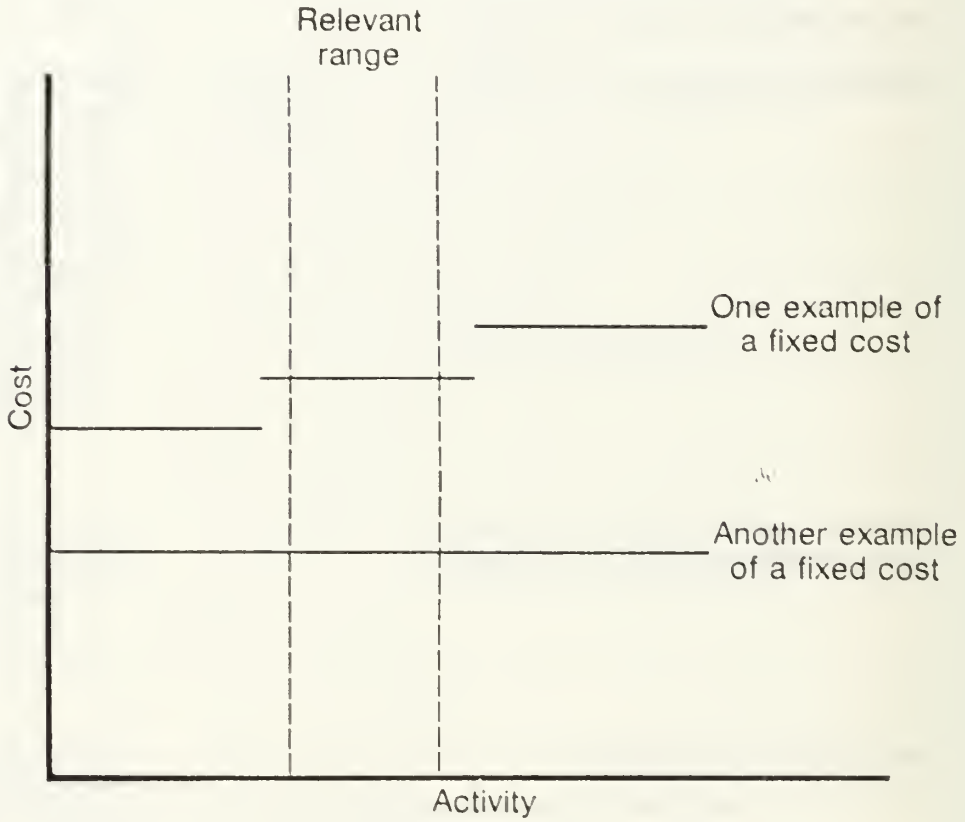
THREE COST BEHAVIOR PATTERNS-VARIABLE COSTS, FIXED COSTS AND MIXED COSTS-ARE FOUND IN MOST ORGANIZATIONS. THE RELATIVE PROPORTION OF EACH TYPE OF COST IS KNOWN AS A FIRM'S COST STRUCTURE.

EXAMPLES OF VARIABLE COSTS

TYPE OF ORGANIZATION	VARIABLE COSTS
MERCHANDISING FIRM	COST OF GOODS SOLD
MANUFACTURING FIRM	MANUFACTURING COSTS: PRIME COSTS: Direct Materials Direct Labor VARIABLE PORTION OF MANUFACTURING OVERHEAD: Indirect Materials Supplies Utilities Indirect Labor
BOTH MERCHANDISING & MANUFACTURING FIRMS	SELLING AND ADMIN. COSTS: Commissions to Salespersons Clerical costs
SERVICE FIRMS	SUPPLIES TRAVEL CLERICAL

FIXED COST PATTERNS

A FIXED COST REMAINS CONSTANT IN TOTAL AMOUNT THROUGHOUT WIDE RANGES OF ACTIVITY. A FIXED COST VARIES INVERSLY WITH ACTIVITY IF EXPRESSED ON A PER UNIT BASIS.



FIXED COST BEHAVIOR

COMMITTED FIXED COSTS.

THOSE COSTS THAT RELATE TO THE INVESTMENT IN PLANT, EQUIPMENT AND THE BASIC ORGANIZATIONAL STRUCTURE OF A FIRM.

EXAMPLES ARE:

Depreciation on plant facilities
Insurance
Taxes on Real Estate
Salaries of top management

COMMITTED FIXED COSTS ARE USUALLY:

1) LONG-TERM IN NATURE

2) CONTINUE EVEN IN TIMES OF ECONOMIC DIFFICUTY

DISCRETIONARY FIXED COSTS.

THOSE COSTS THAT ARISE FROM ANNUAL DECISIONS BY MANAGEMENT TO SPEND IN CERTAIN FIXED COST AREAS.

EXAMPLES ARE:

Advertising
Research & Development

MIXED COST BEHAVIOR

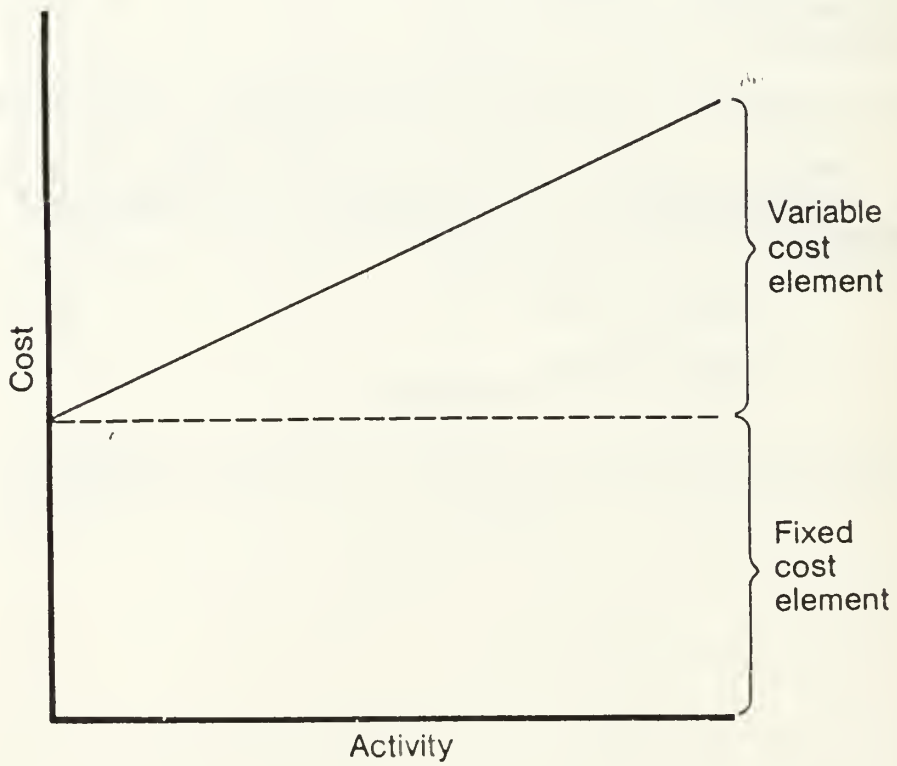
WHAT ARE MIXED COSTS?

A MIXED COST (OR SEMIVARIABLE) COST IS ONE THAT CONTAINS BOTH VARIABLE AND FIXED COST ELEMENTS.

EXAMPLES OF MIXED COSTS:

1) *ELECTRICITY*
2) *LEASE ARRANGEMENTS*
3) *MAINTENANCE*
4) *CLERICAL COSTS*

MIXED COST ANALYSIS



TOTAL COST VARIANCE

COMPOSITION

PRICE VARIANCE

+ DIFFERENCE BETWEEN ACTUAL AND BUDGETED COSTS
+ CAUSED BY CHANGES IN COST OF MATERIAL INPUTS TO PRODUCTION

EFFICIENCY VARIANCE

+ DIFFERENCE BETWEEN ACTUAL AND BUDGETED RESULTS
+ CAUSED BY THE DIFFERENCE BETWEEN INPUTS THAT WERE EXPECTED PER UNIT OF OUTPUT AND INPUTS THAT WERE ACTUALLY USED

COST AREAS

DIRECT MATERIALS

+ PRICE VARIANCE
+ EFFICIENCY VARIANCE

DIRECT LABOR

+ LABOR PRICE VARIANCE
+ LABOR EFFICIENCY VARIANCE

MANUFACTURING OVERHEAD

+ PRICE VARIANCE
+ EFFICIENCY VARIANCE

FIXED COSTS

+ PRICE VARIANCE

+ PRODUCTION VOLUME VARIANCE

VARIABLE MANUFACTURING COST VARIANCES

ACTUAL	ACTUAL INPUTS AT STD. PRICE	FLEXIBLE BUDGET
Actual input price (AP) times actual quantity (AQ) of output	Standard price (SP) times actual quantity (AQ) of input	Standard input price (SP) times standard quantity (SQ) of input allowed for actual output
(AP x AQ)	(SP x AQ)	(SP x SQ)

Price Variance
(AP - SP) x AQ

Efficiency Variance
SP x (AQ - SQ)

Total Variance
(AP x AQ) - (SP x SQ)

COST VARIANCE

SUMMARY

INPUT	PRICE VARIANCE	EFFICIENCY VARIANCE
DIRECT MATERIALS	PRICE (OR PURCHASE PRICE VARIANCE	USAGE OR QUANTITY VARIANCE
DIRECT LABOR	RATE VARIANCE	EFFICIENCY VARIANCE
VARIABLE OVERHEAD	SPENDING VARIANCE	EFFICIENCY VARIANCE

MODULE - B

PLANNING PROGRAMMING AND BUGETING (PPBS)

MODULE B - LESSON 1 OUTLINE

PLANNING, PROGRAMMING, AND BUDGETING SYSTEM (PPBS)

I. Planning, Programming and Budgeting System (VB-1)

A. Definition: The process by which an organization's goals are translated into fiscal budget requirements. (VB-2)

B. PPBS Concerns (VB-3)

1. Management of Resources
2. Strategic Requirements

C. PPBS Process (VB-4)

1. Threat
2. Strategy
3. Requirements
4. Programs
5. Budget

D. Goals of PPBS (VB-5)

1. Cost Effectiveness
2. Allocation of Resources
3. Alternative Programs
4. Decision Making
5. Organization Objectives

II. Planning

A. Definition: Developing organizational plans to meet the threat and or competition. (VB-6)

B. Three Planning Steps (VB-7)

1. Assess the Threat
2. Determine Strategy
3. Develop Planning Guidance

III. Programming

A. Definition: Translating organizational plans into programs defined in terms of: (VB-8)

1. Forces
2. Personnel
3. Material
4. Dollars

B. Five Steps of Programming (VB-9)

1. Initiation - The origination of a new idea.
2. Screening - Ensure proposal is consistent with the goals of the organization.
3. Technical Analysis - Estimating costs, benefits, feasibility, and alternatives.
4. Political Analysis - Determine the political ramifications of the various options.
5. Decision and Selling - Determine if the proposal is acceptable to senior management.

IV. Budgeting

A. Definition: A plan for accomplishing an organization's objectives through the management of available resources. (VB-10)

B. Purpose of Budgeting (VB-11)

1. Allocation of scarce resources.
2. Communicate requirements.
3. Performance standards.

C. Budget Formulation - The process used to develop, review, justify, and present fiscal estimates of mission requirements. (VB-12)

D. Budget formulation "DO's" (VB-13)

1. Know the budget climate
2. Begin budget formulation early
3. Identify all requirements
4. Involve all levels of management
5. Anticipate future needs (plan ahead)

E. Budget formulation "DON'Ts" (VB-14)

1. Make arithmetic errors
2. Be late in submitting budget
3. Exaggerate requirements
4. Under justify requirements

(PPBS)

PLANNING, PROGRAMMING

AND

BUDDETING SYSTEM

PPBS:

THE PROCESS BY WHICH AN ORGANIZATION'S GOALS ARE TRANSLATED INTO FORMAL BUDGETARY REQUIREMENTS.

PPBS CONCERNS

MANAGEMENT OF RESOURCES

STRATEGIC REQUIREMENTS

PPBS PROCESS

THREAT

STRATEGY

REQUIREMENTS

PROGRAMS

BUDGET

GOALS OF PPBS

COST EFFECTIVE

ALLOCATION OF RESOURCES

ALTERNATIVE PROGRAMS

DECISION MAKING

ORGANIZATIONAL OBJECTIVES

PLANNING

DEFINED: PROCESS OF DEVELOPING ORGANIZATIONAL PLANS TO MEET THE THREAT AND/OR COMPETITION.

PLANNING STEPS

ASSESS THE THREAT

DETERMINE STRATEGIES

DEVELOP PLANNING GUIDANCE

PROGRAMMING

TRANSLATE PLANS TO PROGRAMS

DEFINED IN TERMS OF:

- FORCES
- PERSONNEL
- MATERIAL
- DOLLARS

PROGRAMMING STEPS

INITIATION

SCREENING

TECHNICAL ANALYSIS

POLITICAL ANALYSIS

DECISION AND SELLING

BUDGETING

A PLAN FOR ACCOMPLISHING AN ORGANIZATIONS OBJECTIVES THROUGH MANAGEMENT OF RESOURCES.

PURPOSE OF BUDGETING

ALLOCATION OF SCARCE RESOURCES

COMMUNICATE REQUIREMENTS

SET PERFORMANCE STANDARDS

BUDGET FORMULATION

BUDGET FORMULATION IS THE PROCESS USED TO DEVELOP, REVIEW, JUSTIFY, AND PRESENT FISCAL ESTIMATES OF MISSION REQUIREMENTS.

BUDGET FORMULATION "DOs"

KNOW THE BUDGET CLIMATE

BEGIN BUDGET FORMULATION EARLY

IDENTIFY ALL REQUIREMENTS

INVOLVE ALL LEVELS OF MANAGEMENT

ANTICIPATE FUTURE NEEDS

BUDGET FORMULATION "DON'Ts"

MAKE ARITHMETIC ERRORS

BE LATE IN SUBMITTING BUDGET

EXAGGERATE REQUIREMENTS

UNDERJUSTIFY REAL REQUIREMENTS

MODULE - C

MANAGEMENT

MODULE - C
MANAGEMENT

- PLANNING
- ORGANIZING
- LEADING
- CONTROLLING

INSTRUCTOR'S GUIDE

MODULE C - MANAGEMENT

TABLE OF CONTENTS

I. TABLE OF CONTENTS 1

II. MODULE OUTLINE WITH LECTURE NOTES 2

A. LESSON 1 (PLANNING) 3
B. LESSON 2 (ORGANIZING) 5
C. LESSON 3 (LEADING) 7
D. LESSON 4 (CONTROLLING) 9

VI. VIEWGRAPHS VC-1

MODULE C - OUTLINE
WITH LECTURE NOTES

MANAGEMENT

I. Management definition: The process of planning, organizing, leading and controlling the work of organization members and of using all available organizational resources to reach stated organizational goals.

II. Four Managerial Activities {use viewgraph VC-1}

A. Planning

B. Organizing

C. Leading

D. Controlling

** NOTE: Stress this module will focus on the fundemental management principles commonly used in both private and public sectors.

MODULE C - LESSON 1 OUTLINE
PLANNING

Planning {use viewgraph VC-2}

A. Definition: The process of establishing objectives and suitable courses of action.

B. Four Steps in Planning {use viewgraph VC-3}
1. Establish the goals
2. Define the present situation
3. Determine aids and barriers
4. Develop a set of actions

C. Types of Plans {use viewgraph VC-3}
1. Strategic
a. Definition: The broad program for defining and achieving an organization's objectives; the organization's response to its environment over time.
b. Components {use viewgraph VC-4}
1) Policy formulation: The concept of implementing day-to-day rules that puts boundaries around what a functional area can and cannot do.
2) Initial strategy: The determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.
3) Strategic management
a) Objectives
- Establish goals
- Forecast future conditions
- Formulate
- Evaluate past strategy
- Implement strategy
c. Process {use viewgraph VC-5}
1) Goal formulation
2) Identification of current objectives
3) Environmental analysis
4) Resource analysis
5) Identify strategic opportunities/threats
6) Gap analysis
7) Decision making
8) Implementation
9) Measurement and control

d. Strategy Levels {use viewgraph VC-6}
1) Corporate

2) Business-unit
3) Functional-level

2. Operational {use viewgraph VC-7}

a. Single-Use: Detailed courses of action used once or only occasionally to solve problems that do not occur repeatedly.

b. Standing: An established set of decisions used by management to deal with recurring or organizational activities; major types are policies, procedures or rules.

** NOTE: Use viewgraph VC-8 to dispaly the hierarchy of organizational plans highlighting operational planning.

3. Operational vs Strategic {use viewgraph VC-9}

a. Operational - efficiency
b. Strategic - effectiveness

MODULE C - LESSON 2 OUTLINE
ORGANIZING

Organization {use viewgraph VC-10}

A. Definition: The process of arranging an organization's structure and coordinating it managerial practices and use of resources to achieve its goals.

B. Structures
1. Aspects {use viewgraph VC-11}
a. The division of work
b. Managers and subordinates
c. The type of work being performed
d. The grouping of work segments
e. The levels of management

2. Forms {use viewgraph VC-12}
a. Formal {use viewgraph VC-13}
1) Functional: A form of departmentalization in which everyone engaged in one functional activity, such as marketing or finance, is grouped into one unit.
{use viewgraph VC-14}
2) Product or Market: The organization of a company by divisions that bring together all those involved with a certain type of product or customer.
{use viewgraph VC-15}
3) Matrix: An organizational structure in which each employee reports to both a functional or division manager and to a project or group manager.
{use viewgraph VC-16}
b. Informal
1) Definition: The undocumented and officially unrecognized relationships between members of an organization that inevitably emerge out of the personal and group needs of employees.

** NOTE: Stress that informal organizations usually exist concurrently within a formal organization's structure.

C. Centralized vs Decentralized {use viewgraph VC-17}
1. Centralization: The extent to which authority is concentrated at the top of the organization.

2. Decentralization: The delegation of power and authority from higher to lower levels of the organization, often accomplished by the creation of small, self-contained organizational units.

a. Strategy and the organization's environment
b. Size and rate of growth
c. Characteristics of the organization

D. Process {use viewgraph VC-18}

1. Detailing all the work that must be done to attain the organization's goals.

2. Dividing the total work load into activities that can logically and comfortably be performed by one person or by a group of individuals.

3. Combining the work of the organization's members in a logical and efficient manner.

4. Setting up a mechanism to coordinate the work of organization's members into a unified harmonious whole.

5. Monitoring the effectiveness of the organization and making adjustments to maintain or increase effectiveness.

E. Authority {use viewgraph VC-19}

1. Definition: Power rooted in the general understanding that specific individuals or groups have the right to exert influence within certain limits by virtue of their position within the organization.

2. Forms {use viewgraph VC-20}

a. Line: The authority of those managers directly responsible, throughout the organization's chain of command, for achieving organizational goals.

b. Staff: The authority of those groups of individuals who provide line managers with advice and services.

c. Functional: The authority of staff-department members to control the activities of other departments that are related to specific staff responsibilities.

MODULE C - LESSON 3 OUTLINE
LEADERSHIP

Leadership {use viewgraph VC-21}

A. Definition: The process of directing and inspiring workers to perform the task-related activities of the group.

B. Leadership Process

** NOTE: Stress leadership involves subordinates. Leaders must have people to lead.

1. Power Bases {use viewgraph VC-22}

a. Reward power: The power derived from the fact that one person known as an influencer, has the ability to reward another person, known as the influencee, for carrying out orders, which may be expressed or implied.

b. Coercive power: The negative side of reward power, based on the influencer's ability to punish the influencee.

c. Legitimate power: Power that exists when a subordinate or influencee acknowledges that the influencer has a right or is lawfully entitled to exert influence - within certain bounds. Also called formal authority.

d. Expert power: Power based upon the belief or understanding that the influencer has specific knowledge or relevant expertise which the influencee does not.

e. Referent power: Power based on the desire of the influencee to be like or identify with the influencer.

2. Influence

a. Influnce is the common thread in power.

b. Influence is the ability to get the subordinate to accomplish the task.

C. Organizational Theories {use viewgraph VC-23}

1. Behaviorial approach

a. Functions
b. Styles {use viewgraph VC-24}
   1) Autocratic
   2) Democratic
   3) "Free Reign"
c. Influential Forces {use viewgraph VC-25}
   1) Manager
   2) Subordinates
   3) Situation

2. Situational approach
   a. Dimensions {use viewgraph VC-26}
      1) Position power
      2) Task structure
      3) Leader-member relations
   b. Styles {use viewgraph VC-27}
      1) Task-oriented
      2) Leader-member

D. Motivation {use viewgraph VC-28}

1. Definition: Inner state thet energizes, activates or moves and that directs or channels behavior towards goals.

2. Motivation Theories {use viewgraph VC-29}
   a. Content
      1) Need
      2) Drive
      3) Actions
      4) Satisfaction
   b. Process
      1) Emphasizes individual goals
      2) Focus is on individual's expectancy
      3) Individual's preference of an expected outcome

E. Communication {use viewgraph VC-30}

1. Definition: The means by which people are linked together in an organization in order to achieve a common purpose.

** NOTE: Communication is the critical means by which an organization is unified.

2. Elements {use viewgraph VC-31}
   a. Sender
   b. Encoding
   c. Message

d. Channel
e. Receiver
f. Decoding
g. Noise
h. Feedback

3. Communication Processes {use viewgraph VC-32}
a. One-way
b. Two-way

4. Barriers
a. Factors that degrade the communication process
b. Different levels of degradation

MODULE C - LESSON 4 OUTLINE
CONTROLS

CONTROLS {use viewgraph VC-33}

A. Definition: The process of assuring that the actual activities conform to planned activities.

B. Prerequisites {use viewgraph VC-34}
1. Specific plans inplace
2. Viable organizational structure

** NOTE: Use viewgraph VC-35 to display a basic planning and control cycle.

C. Control Process {use viewgraph VC-36}
1. Establish standards {use viewgraph VC-37}
a. Measuring units
b. Control mechanisms
2. Performance measures {use viewgraph VC-38}
a. On-going, forward looking process
b. Quantitative
c. Qualitative
d. Measure actual performance against standard performance
3. Correction of deviations {use viewgraph VC-39}
a. Feedback on differences between actual and standard performance
b. Ability to correct discrepancies

** NOTE: Use viewgraph VC-40 to display the interaction of the control process.

C. Importance of Controls {use viewgraph VC-41}

1. Environmental changes
2. Organizational complexity
3. Complexity creates problems
4. Controls minimize problems

D. Types of Controls {use viewgraph VC-42}

1. Pre-action (Pre-controls): Controls that ensure human, material and financial resources have been budgeted.

2. Steering (Feed forward): Controls designed to detect deviations from some standard goal and to permit corrective measures.

3. YES/NO (Go/No-Go): Procedures to be followed or conditions that must be met before operations continue.

4. Post-action: Controls that measure the results of a completed activity.

** NOTE: Use viewgraph VC-43 to display the flow of information and the types of controls used in the information process.

E. Characteristics {use viewgraph VC-44}

1. Accurate
2. Timely
3. Objective
4. Focused
5. Prescriptive
6. Acceptable
7. Coordinated
8. Flexible
9. Comprehensive
10. Realistic
11. Operational

MODULE C
REFERENCE LIST FOR VIEWGRAPHS

Ideas for viewgraphs (VC-1 to VC-44) were taken from the following sources:

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MANAGEMENT

PROCESS OF:

- PLANNING
- ORGANIZING
- LEADING
- CONTROLLING

PROCESS OF USING ALL RESOURCES AVAILABLE TO ACHIEVE ORGANIZATIONAL GOALS

PLANNING

THE PROCESS OF ESTABLISHING OBJECTIVES AND SUITABLE COURSES OF ACTION.

TYPES OF PLANS

+ STRATEGIC

+ OPERATIONAL

COMPONENTS OF STRATEGY

+ POLICY FORMULATION

+ INITIAL STRATEGY

+ STRATEGIC MANAGEMENT

STRATEGY

FORMULATION & IMPLEMENTATION

I. GOAL FORMULATION

II. IDNETIFICATION OF CURRENT OBJECTIVES & STRATEGY

III. ENVIRONMENTAL ANALYSIS

IV. RESOURCE ANALYSIS OF ORGANIZATIONAL STRENGTHS & WEAKNESSES

V. IDENTIFICATION OF STRATEGIC OPPORTUNITIES & THREATS

VI. GAP ANALYSIS: DETERMINE EXTENT OF CHANGE REQUIRED IN CURRENT STRATEGY

VII. STRATEGIC DECISION MAKING:
- + Develop Alternatives
- + Evaluate Alternatives
- + Select Alternatives

VIII. STRATEGY IMPLEMENTATION

IX. MEASUREMENT & CONTROL OF PROGRESS

STRATEGY LEVELS

CORPORATE LEVEL

+ MULTIBUSINESS CORPORATION

BUSINESS-LEVEL

+ STRATEGIC BUSINESS UNIT

FUNCTIONAL-LEVEL

+ RESEARCH & DEVELOPMENT
+ MANUFACTURING
+ MARKETING
+ SALES
+ FINANCE

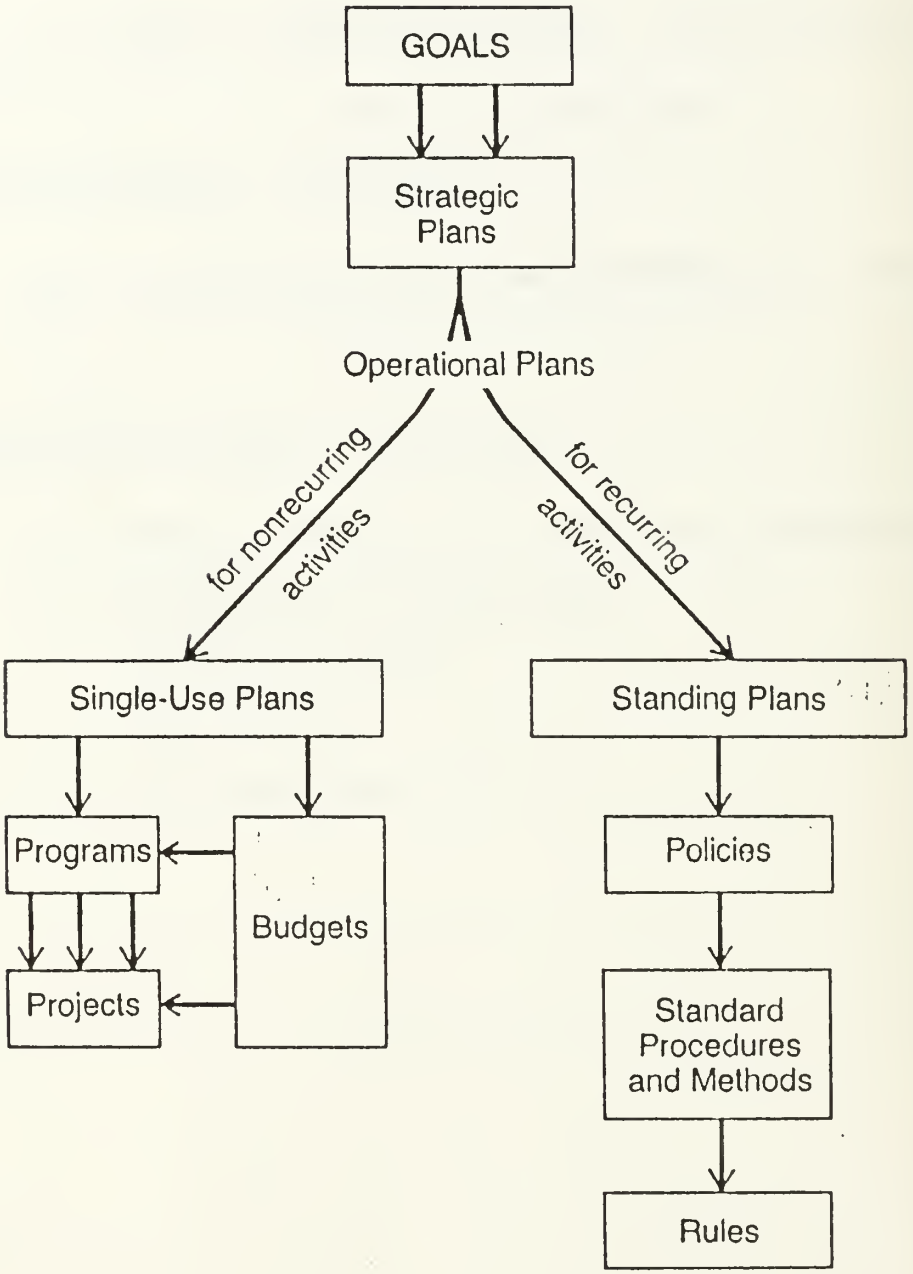
OPERATIONAL PLANS

+ SINGLE-USE

+ STANDING

ORGANIZATIONAL PLANS

HEIRARCHY



OPERATIONAL

VS

STRATEGIC PLANNING

+ OPERATIONAL- STRESSES EFFICIENCY

+ STRATEGIC- STRESSES EFFECTIVENESS

ORGANIZING

THE PROCESS OF ARRANGING AN ORGANIZATION'S STRUCTURE AND COORDINATING ITS MANAGERIAL PRACTICES AND USE OF RESOURCES TO ACHIEVE ITS GOALS.

ORGANIZATION ASPECTS

+ DIVISION OF WORK

+ MANAGERS AND SUBORDINATES

+ TYPE OF WORK

+ GROUPING OF WORK ASSIGNMENTS

+ LEVELS OF MANAGEMENT

ORGANIZATIONAL FORMS

+ FORMAL

  - FUNCTIONAL

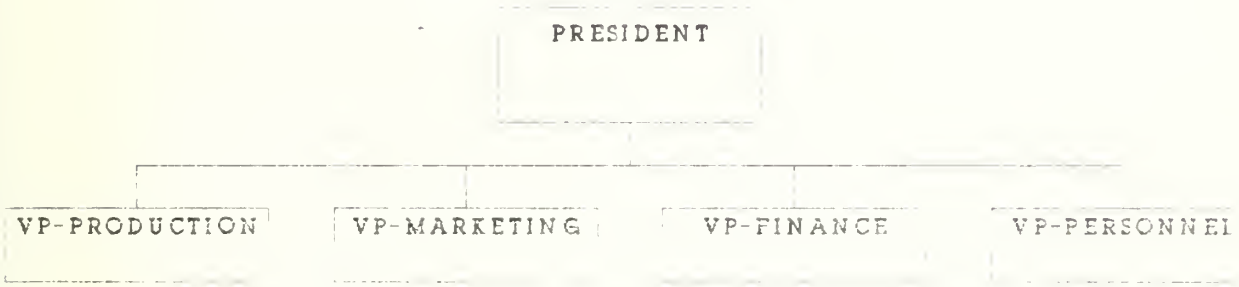
  - PRODUCT/MARKET

  - MATRIX

+ INFORMAL

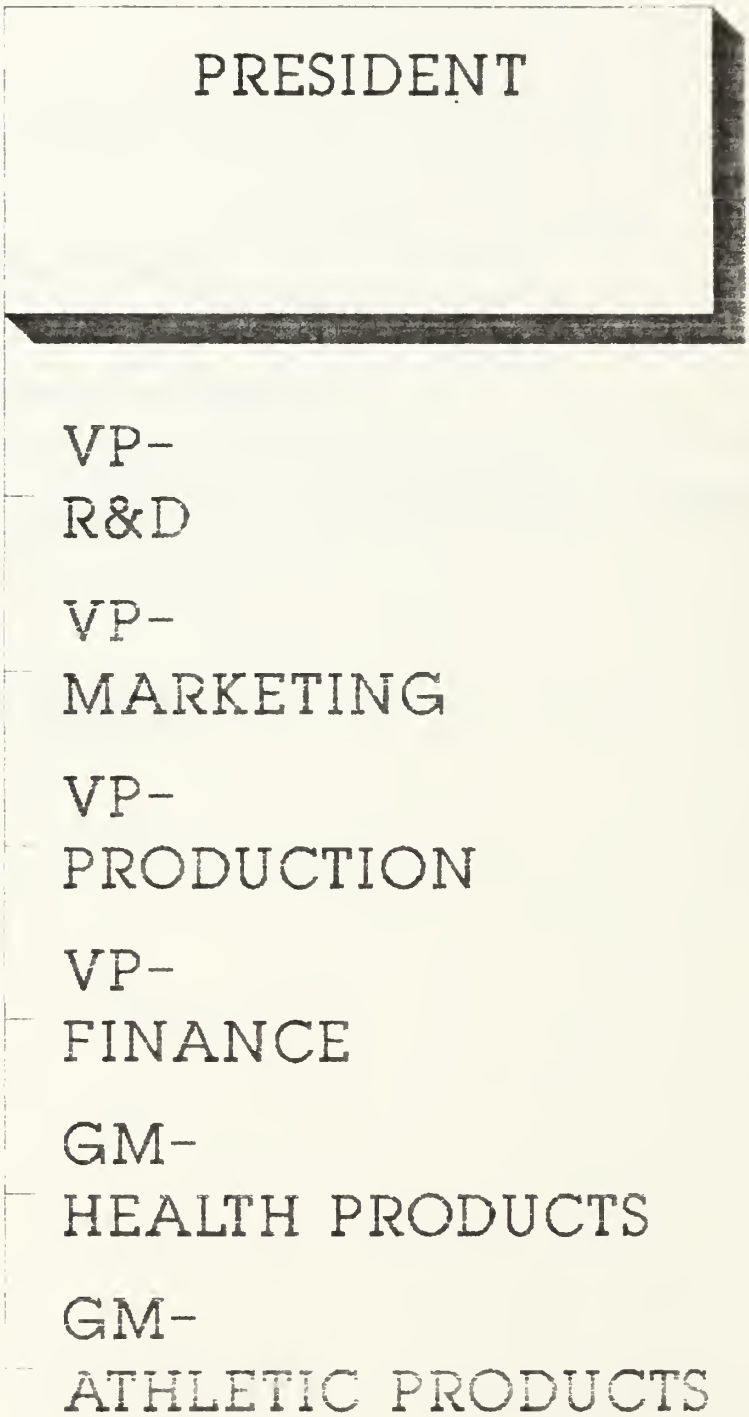
ORGANIZATION CHART

FUNCTIONAL



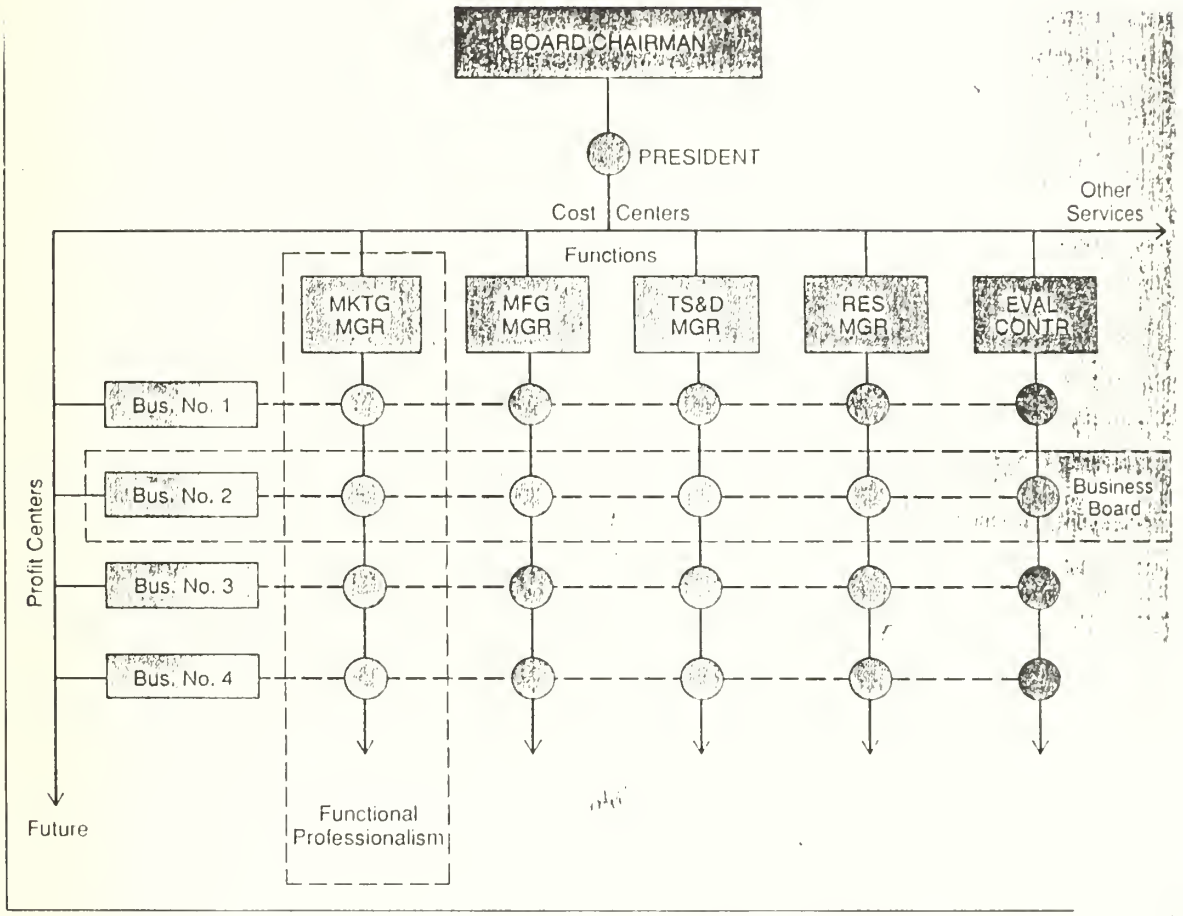
ORGANIZATION CHART

PRODUCT OR MARKET



ORGANIZATION CHART

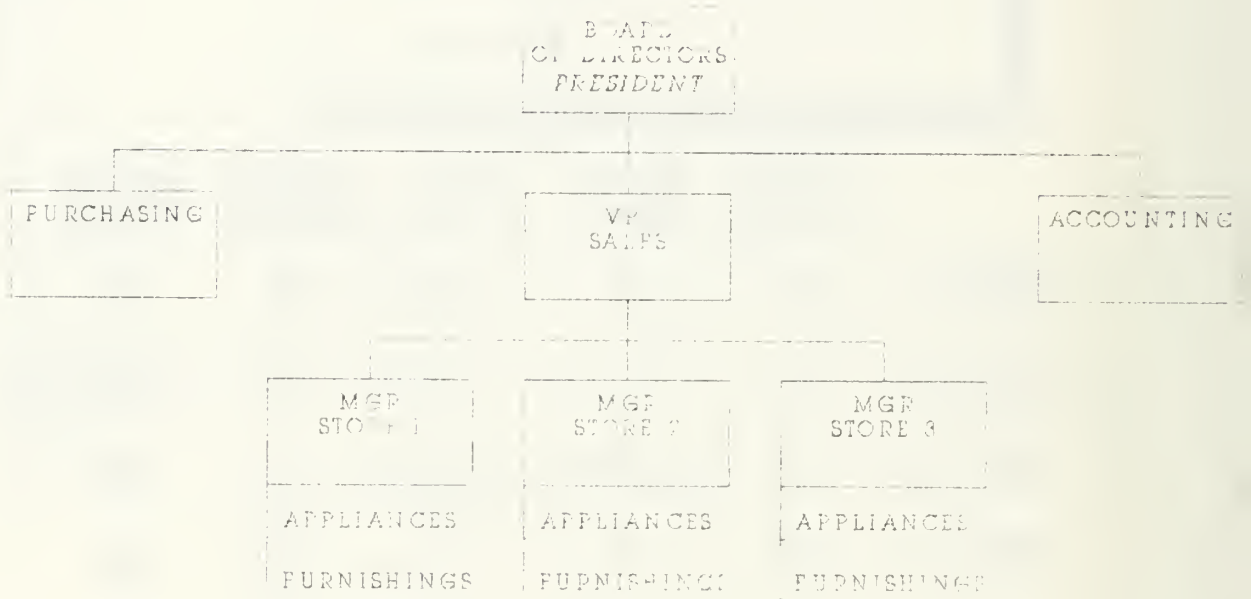
MATRIX



Source: William C. Goggins, "How the Multidimensional Structure Works at Dow Corning," *Harvard Business Review*, January–February 1974. Copyright © 1973 by the President and Fellows of Harvard College, all rights reserved

ORGANIZATION CHART

LINE & STAFF RELATIONSHIP



CENTRALIZED

VS

DECENTRALIZED

CENTRALIZED - EXTENT AUTHORITY IS CONCENTRATED AT THE TOP OF AN ORGANIZATION.

DECENTRALIZED - DELEGATION OF AUTHORITY FROM HIGHER TO LOWER LEVELS WITHIN THE ORGANIZATION. ACCOMPLISHED BY CREATING SMALL, SELF-CONTAINED UNITS.

ORGANIZATION

PROCESS

+ DETAILING

+ DIVIDING

+ COMBINING

+ COORDINATING

+ MONITORING

AUTHORITY

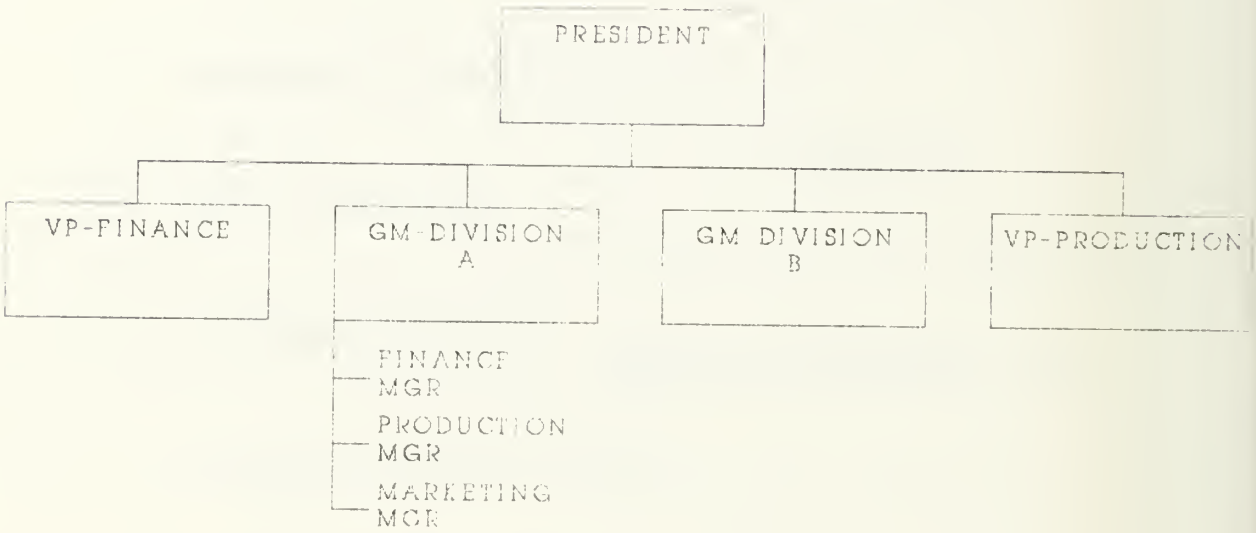
+ LINE

+ STAFF

+ FUNCTIONAL

ORGANIZATION CHART

FUNCTIONAL AUTHORITY RELATIONSHIP



LEADERSHIP

THE PROCESS OF DIRECTING AND INSPIRING WORKERS TO PERFORM THE TASK-RELATED ACTIVITIES OF THE GROUP.

POWER BASES

+ REWARD

+ COERCIVE

+ LEGITIMATE

+ EXPERT

+ REFERENT

ORGANIZATIONAL THEORIES

+ BEHAVIORIAL APPROACH

+ SITUATIONAL APPROACH

STYLES

+ AUTOCRATIC

+ DEMOCRATIC

+ FREE REIGN

INFLUENTIAL FORCES

+ MANAGER

+ SUBORDINATES

+ SITUATION

DIMENSIONS

+ POSITION POWER

+ TASK STRUCTURE

+ LEADER-MEMBER RELATIONS

STYLES

+ TASK-ORIENTED

+ LEADER-MEMBER

MOTIVATION

THE INNER STATE THAT ENERGIZES, ACTIVATES OR MOVES AND THAT DIRECTS OR CHANNELS BEHAVIOR TOWARDS GOALS.

MOTIVATION

THEORIES

+ CONTENT

+ PROCESS

+ REINFORCEMENT

COMMUNICATION

THE MEANS BY WHICH PEOPLE ARE LINKED TOGETHER IN AN ORGANIZATION IN ORDER TO ACHIEVE A COMMON PURPOSE.

COMMUNICATION PROCESS

TRANSMIT

SENDER (SOURCE)

ENCODE

MESSAGE

CHANNEL

+ NOISE

+ FEEDBACK

RECEIVE

DECODE

RECEIVER

COMMUNICATION PROCESSES

+ ONE-WAY

+ TWO-WAY

CONTROLS

THE PROCESS OF ASSUMING THAT THE ACTUAL ACTIVITIES CONFORM TO PLANNED ACTIVITIES.

CONTROL

PREREQUISITES

+ SPECIFIC PLANS IN PLACE

+ VIABLE ORGANIZATIONAL STRUCTURE

CONTROL PROCESS

+ ESTABLISH STANDARDS

+ PERFORMANCE MEASURES

+ CORRECTION OF DEVIATIONS

ESTABLISH STANDARDS

+ MEASURING UNITS

+ CONTROL MECHANISMS

PERFORMANCE MEASURES

+ ON-GOING, FORWARD LOOKING PROCESS

+ QUANTITATIVE

+ QUALITATIVE

+ MEASURE ACTUAL AGAINST STANDARD PERFORMANCE

CORRECTION OF DEVIATIONS

+ FEEDBACK ON DIFFERENCES BETWEEN ACTUAL AND STANDARD PERFORMANCE

+ ABILITY TO CORRECT DISCREPANCIES

CONTROL PROCESS

BASIC STEPS

1. ESTABLISH STANDARDS & METHODS OF MEASURING PERFORMANCE

2. MEASURE PERFORMANCE

3. DOES PERFORMANCE MATCH STANDARDS?

   a. YES, DO NOTHING

   b. NO, TAKE CORRECTIVE ACTION

IMPORTANCE OF CONTROLS

+ ENVIRONMENTAL CHANGES

+ ORGANIZATIONAL COMPLEXITY

+ COMPLEXITY CREATES PROBLEMS

+ CONTROLS MINIMIZE PROBLEMS

TYPES OF CONTROLS

+ PRE-ACTION (PRE CONTROLS)

+ STEERING (FEED FORWARD)

+ SCREENING (GO/NO-GO)

+ POST-ACTION

TYPES OF CONTROL INTERACTIONS

PRE-ACTION CONTROLS

+ AFFECTS INPUT OF INFORMATION
+ AFFECTED BY POST-ACTION CONTROLS OF CORRECTIVE ACTIONS

STEERING CONTROLS

+ AFFECTS INPUTS BY CORRECTIVE ACTIONS
+ AFFECTS INFORMATION PROCESSING BY CORRECTIVE ACTION
+ AFFECTED BY INPUTS
+ AFFECTED BY PROCESSING INFORMATION

YES/NO CONTROLS

+ AFFECTS INFORMATION PROCESSING
+ AFFECTED BY PROCESSING INFORMATION

POST-ACTION CONTROLS

+ AFFECTS BOTH PRE-ACTION CONTROLS AND INFORMATION PROCESSING
+ AFFECTED BY OUTPUT OF INFORMATION

CONTROL

CHARACTERISTICS

1. ACCURATE
2. TIMELY
3. OBJECTIVE
4. FOCUSED
5. ACCEPTABLE
6. PRESCIPTIVE
7. COORDINATED
8. FLEXIBLE
9. COMPREHENSIVE
10. REALISTIC
11. OPERATIONAL

MODULE – D

AUDITING

MODULE D - LESSON OUTLINE

AUDITING

I. Auditing: The process by which quantifiable information is gathered, analyzed, and evaluated to determine and report about the accuracy of a firm's related financial statements. (VD-1)

A. Two Categories of Audits: (VD-2)

1. External - A verification process by which an independent evaluation and appraisal is made of an organization's financial statements.

2. Internal - A process in which organizational personnel evaluate procedures for safeguarding assets and records and assist managers in appraising the organization's operational efficiency.

B. Types of Audits: (VD-3)

1. Operational - A review of an organization's operating procedures and methods for the purpose of evaluating efficiency and effectiveness. (VD-4)

2. Compliance - Determine whether the auditee is following specific procedures or rules set down by higher authority. (VD-5)

3. Audits of Financial Statements - Determine whether overall financial statements are stated IAW specified criteria. (VD-6)

C. Audit Phases: (VD-7)

1. Preliminary Survey - Obtain background and general information.

2. Review and Test of Management Controls

3. Detailed Examination - Actual audit.

4. Report Development - Report conclusion based upon evidence gathered.

D. Auditor's Opinion: "The primary objective of an independent audit is the examination of sufficient accounting data and other evidence to permit the auditor

to express an opinion on the reasonableness of management's representation in the financial statements." (VD-8) Types of Opinion include: (VD-9)

1. Unqualified - IAW GAAP/Financial Statements fairly presented.
2. Qualified - Scope restricted or Deviation from GAAP.
3. Disclaimer - Materially restrict scope of audit.
4. Adverse - Material deviation from GAAP/Management knows.

E. Materiality: "The degree to which financial statements may be imprecise but not misleading. (VD-10)

II. Generally Accepted Auditing Standards (GAAS) - general auditing guidelines used to aid professional auditors in fulfilling their responsibilities in the audit of historical financial statements. (VD-11)

A. Three Categories (VD-12)

1. General Standards (VD-13)
   (1) Adequate professional proficiency
   (2) Independent attitude and appearance
   (3) Due professional care
2. Standards of Field Work (VD-14)
   (4) Audit planned and supervised
   (5) Understand Internal Controls
   (6) Sufficient competent evidence
3. Standards of Reporting (VD-15)
   (7) IAW GAAP
   (8) Note inconsistent principles
   (9) Financial statements reasonably accurate
   (10) Expression of opinion

B. Management Assertions (VD-16)

1. Existence or Occurrence
2. Completeness
3. Rights and Obligations
4. Valuation or Allocation

5. Presentation and Disclosure

C. Audit objectives (VD-17)

1. Overall Reasonableness
2. Validity
3. Completeness
4. Ownership
5. Valuation
6. Classification
7. Cutoff
8. Mechanical Accuracy
9. Disclosure

D. Elements of Quality Control (VD-18)

1. Independence
2. Assigning Competent Personnel
3. Consultation
4. Supervision
5. Hiring
6. Professional Development
7. Advancement
8. Client Screening
9. Inspection

III. Audit Risk Factors (VD-19)

1. Risk-free Interest Rate - US Treasury Note
2. Business Risk - Economics/Market trends
3. Information Risk - Bad gouge

IV. Audit Evidence

A. Audit Decisions (VD-20)

1. Audit Procedures
2. Sample Size
3. Items to /select
4. Timing

B. Types of Evidence (VD-21)

1. Physical Examination
2. Confirmation
3. Documentation

4. Observation
5. Inquires of the Client
6. Mechanical Accuracy
7. Analytical Procedures

AUDITING

THE PROCESS BY WHICH EVIDENCE IS GATHERED, ANALYZED, AND EVALUATED TO DETERMINE AND REPORT ABOUT THE ACCURACY OF AN ORGANIZATION'S FINANCIAL STATEMENTS.

CATEGORIES OF AUDITS

EXTERNAL: VERIFICATION BY INDEPENDENT PARTY OF FINANCIAL STATEMENTS

INTERNAL: ORGANIZATIONAL EVALUATION FOR SAFEGUARDING ASSETS AND APPRAISING OPERATIONAL EFFICIENCY

TYPES OF AUDITS

OPERATIONAL

COMPLIANCE

AUDITS OF FINANCIAL STATEMENTS

OPERATIONAL AUDITS

A REVIEW OF AN ORGANIZATION'S OPERATING PROCEDURES AND METHODS FOR THE PURPOSE OF EVALUATING EFFICIENCY AND EFFECTIVENESS.

COMPLIANCE AUDITS

AUDITS USED TO DETERMINE WHETHER THE ORGANIZATION IS FOLLOWING SPECIFIC PROCEDURES OR RULES SET DOWN BY HIGHER AUTHORITY

AUDITS OF FINANCIAL STATEMENTS

AUDITS USED TO DETERMINE WHETHER OVERALL FINANCIAL STATEMENTS ARE STATED IAW ESTABLISHED CRITERIA.

AUDIT PHASES

PRELIMINARY SURVEY

REVIEW AND TEST OF
MANAGEMENT CONTROLS

DETAILED EXAMINATION

REPORT DEVELOPMENT

AUDITOR'S OPINION

"THE PRIMARY OBJECTIVE OF AN INDEPENDENT AUDIT IS THE EXAMINATION OF SUFFICIENT ACCOUNTING DATA AND OTHER EVIDENCE TO PERMIT THE AUDITOR TO EXPRESS AN OPINION ON THE REASONABLENESS OF MANAGEMENT'S REPRESENTATION IN THE FINANCIAL STATEMENTS."

TYPES OF OPINIONS

UNQUALIFIED

QUALIFIED

DISCLAIMER

ADVERSE

MATERIALITY

"THE DEGREE TO WHICH FINANCIAL STATEMENTS MAY BE IMPRECISE BUT NOT MISLEADING.

GENERALLY ACCEPTED AUDITING STANDARDS (GAAS)

GENERAL AUDITING GUIDELINES USED TO AID PROFESSIONAL AUDITORS IN FULFILLING THEIR RESPONSIBILITIES IN THE AUDIT OF HISTORICAL FINANCIAL STATEMENTS.

THREE CATEGORIES OF GAAS

GENERAL STANDARDS

STANDARDS OF FIELD WORK

STANDARDS OF REPORTING

GENERAL STANDARDS

(1) PROFESSIONAL PROFICIENCY

(2) INDEPENDENT ATTITUDE AND APPEARANCE

(3) DUE PROFESSIONAL CARE

STANDARDS OF FIELD WORK

(4) AUDIT PLANNED AND SUPERVISED

(5) UNDERSTAND INTERNAL CONTROLS

(6) SUFFICIENT COMPETENT EVIDENCE

STANDARDS OF REPORTING

(7) IAW GAAP

(8) NOTE INCONSISTENT PRINCIPLES

(9) FINANCIAL STATEMENTS
REASONABLY ACCURATE

(10) EXPRESSION OF OPINION

STANDARDS OF REPORTING

(7) IAW GAAP

(8) NOTE INCONSISTENT PRINCIPLES

(9) FINANCIAL STATEMENTS
REASONABLY ACCURATE

(10) EXPRESSION OF OPINION

MANAGEMENT ASSERTIONS

EXISTENCE OR OCCURRENCE

COMPLETENESS

RIGHTS AND OBLIGATIONS

VALUATION OR ALLOCATION

PRESENTATION AND DISCLOSURE

AUDIT OBJECTIVES

OVERALL REASONABLENESS

VALIDITY

COMPLETENESS

OWNERSHIP

VALUATION

CLASSIFICATION

CUTOFF

MECHANICAL ACCURACY

DISCLOSURE

ELEMENTS OF QUALITY CONTROL

INDEPENDENCE

COMPETENT PERSONNEL

CONSULTATION

SUPERVISION

HIRING

PROFESSIONAL DEVELOPMENT

ADVANCEMENT

CLIENT SCREENING

INSPECTION

AUDIT RISK FACTORS

RISK-FREE INTEREST RATE

BUSINESS RISK

INFORMATION RISK

AUDIT DECISIONS

AUDIT PROCEDURES

SAMPLE SIZE

ITEMS TO SELECT

TIMING

AUDIT EVIDENCE

PHYSICAL EXAMINATION

CONFIRMATION

DOCUMENTATION

OBSERVATION

INQUIRES OF THE CLIENT

MECHANICAL ACCURACY

ANALYTICAL PROCEDURES

MODULE E - LESSON OUTLINE

INFORMATION SYSTEMS

I. Information Systems

A. What is an information system? (VE-1)

1. Set of people, equipment, data, and procedures.

2. Seek a common objective of supporting an organization's activities.

B. What does an information system do? (VE-2)

1. Accepts data from internal and external sources.

2. Processed the data.

3. Outputs "information"

C. Types of information management systems. (VE-3)

1. Transaction Processing System

a. Functions (VE-4)

(1) Substitute computer processing for manual record keeping.

(2) Ease in handling structured and routine processes.

b. Sequence of events in transaction processing: (VE-5)

(1) Data capture - acquisition and recording of pertinent data.

(2) Transaction processing - data is validated and manipulated by manual or automated procedures.

(3) File maintenance - records are modified to reflect changes in the database.

(4) Reporting - output in form of hard copy report.

2. Management Information System (MIS)

a. Defined: An integrated system for providing information to support the planning, control, and operation of an organization. (VE-6)

b. Function: To use past, present, and

projected information in well structured recurring situations to assist in the problem solving and decision making process. (VE-7)

c. Three types of MIS reports: (VE-8)

(1) Regular Scheduled Reports

(2) Exception Reports

(3) Unscheduled Reports

2. Decision Support System (DSS)

a. Defined: An information system intended to assist managers and users who must formulate decision alternatives for situations that are not well structured. (VE-9)

b. Key attributes of a DDS (VE-10)

(1) Problems are constantly changing.

(2) System has greater flexibility.

(3) Emphasize getting right information, quickly.

(4) Manipulates data to explore alternatives.

c. Five steps in using a DDS (VE-11)

(1) Examine/Formulate problem.

(2) Identify parameters and variables.

(3) Formulate model.

(4) Test model.

(5) Refine problem.

4. Executive Support System

a. Defined: A computer based system that is compatible with the management style and responsibilities of the executive. (VE-12)

b. Seven features of an Expert Support System (VE-13)

(1) Browse capability.

(2) Multiple presentation formats.

(3) Simple Interface.

(4) Analytical and modeling features.

(5) Tailoring and customizing.

(6) Access to external data sources.

(7) Data from multiple sources.

5. Expert Support System

a. Defined: A computer based system that uses stored facts and rules to mimic a human expert. (VE-14)

b. Three uses of an expert support system:

(1) Capture expertise.

(2) Minimize risk of error.

(3) Interrelate volumes of essential information.

6. Work Group Support System

a. Defined: An information system designed to assist a group of managers collectively or individually formulate decision alternatives for unstructured situations. (VE-15)

b. Three types of work group support systems: (VE-15)

(1) Decision Room.

(2) Linked Decision Room.

(3) Remote Decision Room.

D. Information System Benefits (VE-19)

1. Gains in productivity.

2. Improvements in effectiveness.

3. Gaining an competitive advantage.

E. Information System Environment - Four Components (VE-19)

1. Business environment.

2. Organization.

3. Information system structure.

4. Information systems application.

II. Information and Management.

A. Information:

1. Defined: (VE-20)

a. Data presented in a meaningful form to the recipient.

b. Tells something not known or not predicted.

c. Adds to knowledge.

2. Types of information: (VE-21, 22, and 23)

a. Comfort - keeps managers informed about current situations or achievement levels.

b. Status - progress information, keeps managers abreast of current problems and crises.

c. Warning - signals changes are occurring.

d. Planning - describes major developments and programs due to begin in the future.

e. Internal Operations - key indicators of how well the firm is performing.

f. External Intelligence - information, gossip, and opinions about activities in the environment.

g. Externally Distributed - information reviewed by the chief executive prior to release to the general public.

B. Attributes of Information.

1. Defined: That information which adds to relevant knowledge, reduces uncertainty, and supports the decision-making process in an organization. (VE-24)

2. Two categories of attributes of information:

a. Attributes of an "item" of information (VE-25)

b. Attributes of a "set" of information (VE-26)

C. Categories of Information. (VE-27)

1. Primary information: Information which must be gathered specifically for a particular problem.

2. Secondary information: Information that has already been collected and stored in an accessible location.

D. Problems with Information Sources. (VE-28)

1. Intended Use: Must not reflect bias.

2. Validity: The information is meaningful and relevant.

3. Reliability: Accuracy of information.

4. Consistency: The factors from which the information is derived has the same foundation.

5. Age: The information is still valid considering the time period and/or time frame gathered.

III. Computers and Data Processing.

A. Basic Characteristics. (VE 29)

1. Hardware: The equipment and devices that process data.

2. Software: General term describing programs of instruction, languages, and routines or procedures that make it possible for one to use a computer.

3. Procedures: Operating methods which define how computer resources and equipment are to be used.

4. People: The end users. System analysts designers, programmers, operators, engineers, etc...

B. Classes of Computers. (VE-T)

1. Personal Computers.

2. Minicomputers.

3. Mainframe Systems.

4. Supercomputers.

C. Major Elements of a Computer System. (VE-T1)

1. Input Devices.

2. Central Processing Unit (CPU).

3. Output Devices.

4. Secondary Storage Devices.

D. Computer Software.

1. Defined: The computer programs that control the processing of data in a computer system. It control how computer are used. (VE-T2)

2. Two types of computer software: (VE-T3

a. Operating System Software: A group of

programs that monitor and control all input/output and processing operations. (VE-34)

b. Application Software: Software that is designed such that a specific task or group of tasks is performed. (VE-35)

3. Generations of Programming Language. (VE-36)

a. First Generation - commands and instructions are written using strings of binary digits.

b. Second Generation - converts symbolic instructions in programs into machine language.

c. Third Generation - formulates computer programs by specifying the procedures or algorithms to be executed.

d. Fourth Generation - nonprocedural languages in which the emphasis is on what is to be done rather than how it should be done.

e. Fifth Generation - emerging languages that arrive at a solution by using collections of rules and facts.

INFORMATION SYSTEM

SET OF PEOPLE, EQUIPMENT, DATA, AND PROCEDURES

COMMON OBJECTIVE: SUPPORT ORGANIZATIONAL GOALS

AN INFORMATION SYSTEM

ACCEPTS DATA

PROCESSES DATA

OUTPUTS "INFORMATION"

TYPES OF INFORMATION SYSTEMS

TRANSACTION PROCESSING SYSTEMS

MANAGEMENT INFORMATION SYSTEMS

DECISION SUPPORT SYSTEMS

EXECUTIVE SUPPORT SYSTEMS

EXPERT SUPPORT SYSTEMS

WORK GROUP SUPPORT SYSTEMS

TRANSACTION PROCESSING SYSTEM

FUNCTIONS:

SUBSTITUTE COMPUTER PROCESSING FOR MANUAL RECORD KEEPING.

EASE IN HANDLING STRUCTURED AND ROUTINE PROCESSES.

TRANSACTION PROCESSING
(SEQUENCE OF EVENTS)

DATA CAPTURE

TRANSACTION PROCESSING

FILE MAINTENANCE

REPORTING

MANAGEMENT INFORMATION SYSTEM (MIS)

AN INTEGRATED SYSTEM FOR PROVIDING INFORMATION TO SUPPORT THE PLANNING, CONTROL, AND OPERATION OF AN ORGANIZATION.

MANAGEMENT INFORMATION SYSTEM

FUNCTION: TO USE PAST, PRESENT, AND PROJECTED INFORMATION IN WELL STRUCTURED RECURRING SITUATION TO ASSIST IN PROBLEM SOLVING AND THE DECISION MAKING PROCESS.

THREE TYPES OF MIS REPORTS

REGULARLY SCHEDULED REPORTS

EXCEPTION REPORTS

UNSCHEDULED REPORTS

DECISION SUPPORT SYSTEM (DSS)

A COMPUTER BASED INFORMATION SYSTEM DESIGNED TO ASSIST MANAGERS WHO MUST FORMULATE DECISION ALTERNATIVES FOR SITUATIONS THAT ARE NOT WELL STRUCTURED.

KEY ATTRIBUTES OF A DSS

PROBLEMS CONSTANTLY CHANGING

SYSTEM FLEXIBILITY

MANIPULATES DATA

EMPHASIS: GET RIGHT INFORMATION, QUICKLY

FIVE STEPS IN USING A DSS

EXAMINE, FORMULATE PROBLEM

IDENTIFY PARAMETERS
AND VARIABLES

FORMULATE MODEL

TEST MODEL

REFINE PROBLEM

EXECUTIVE SUPPORT SYSTEM

(ESS)

COMPUTER BASED INFORMATION SYSTEM THAT IS COMPATIBLE WITH THE MANAGEMENT STYLE AND RESPONSIBILITIES OF THE EXECUTIVE.

SEVEN FEATURES OF AN ESS

BROWSE CAPABILITY

MULTIPLE PRESENTATION FORMATS

SIMPLE INTERFACE

ANALYTICAL/MODELING FEATURES

TAILORING AND CUSTOMIZING

ACCESS TO EXTERNAL DATA SOURCES

DATA FROM MULTIPLE SOURCES

EXPERT SUPPORT SYSTEM

COMPUTER BASED INFORMATION SYSTEM THAT USES STORED FACTS AND RULES TO MIMIC A HUMAN EXPERT.

EXPERT SUPPORT SYSTEM USES

CAPTURE EXPERTISE

MINIMIZE RISK OF ERROR

INTERRELATE VOLUMES
OF ESSENTIAL DATA

WORK GROUP SUPPORT SYSTEM

(WGSS)

COMPUTER BASED INFORMATION SYSTEM DESIGNED TO ASSIST A GROUP OF MANAGERS. TO COLLECTIVELY OR INDIVIDUALLY, FORMULATE DECISION ALTERNATIVES FOR UNSTRUCTURED SITUATIONS.

THREE TYPES OF WGSS

DECISION ROOM

LINKED DECISION ROOM

REMOTE DECISION ROOM

INFORMATION SYSTEM BENEFITS

GAINS IN PRODUCTIVITY

IMPROVEMENTS IN EFFECTIVENESS

GAINING A COMPETITIVE ADVANTAGE

INFORMATION SYSTEM ENVIRONMENT

FOUR COMPONENTS:

BUSINESS ENVIRONMENT

ORGANIZATION

INFORMATION SYSTEM STRUCTURE

INFORMATION SYSTEM APPLICATION

INFORMATION

DATA PRESENTED IN A MEANINGFUL FORM TO THE USER.

TELLS SOMETHING NOT KNOWN OR NOT PREDICTED

ADDS TO CURRENT KNOWLEDGE

SIX TYPES OF INFORMATION

COMFORT

STATUS

WARNING

PLANNING

EXTERNAL INTELLIGENCE

EXTERNALLY DISTRIBUTED

COMFORT INFORMATION: KEEPS MANAGERS INFORMED ABOUT CURRENT SITUATIONS OR ACHIEVEMENT LEVELS.

STATUS INFORMATION: PROGRESS INFORMATION; KEEPS MANAGERS ABREAST OF CURRENT PROBLEMS.

WARNING INFORMATION: SIGNALS CHANGERS ARE OCCURRING.

PLANNING INFORMATION: DESCRIBES MAJOR DEVELOPMENTS AND PROGRAMS DUE TO BEGIN IN THE FUTURE.

INTERNAL OPERATIONS INFORMATION KEY INDICATOR OF HOW WELL THE ORGANIZATION IS PERFORMING.

EXTERNAL INTELLIGENCE INFORMATION: INFORMATION, GOSSIP, AND OPINIONS ABOUT ACTIVITIES IN THE ENVIRONMENT.

EXTERNALLY DISTRIBUTED INFORMATION: INFORMATION REVIEWED BY THE CHIEF EXECUTIVE PRIOR TO RELEASE TO THE GENERAL PUBLIC.

ATTRIBUTES OF INFORMATION

THAT INFORMATION WHICH ADDS TO RELEVANT KNOWLEDGE, REDUCES UNCERTAINTY, AND SUPPORTS THE DECISION MAKING PROCESS IN AN ORGANIZATION.

ATTRIBUTES OF AN "ITEM" OF INFORMATION

ACCURACY

FORM

FREQUENCY

BREADTH

ORIGIN

TIME HORIZON

ATTRIBUTES OF A "SET" OF INFORMATION

RELEVANCE

COMPLETENESS

TIMELINESS

CATEGORIES OF INFORMATION

PRIMARY: INFORMATION WHICH MUST BE GATHERED SPECIFICALLY FOR A PARTICULAR PROBLEM.

SECONDARY: INFORMATION THAT HAS ALREADY BEEN COLLECTED AND STORED IN AN ACCESSIBLE LOCATION.

PROBLEMS WITH INFORMATION

IMPARTIALITY

VALIDITY

RELIABILITY

CONSISTENCY

AGE

COMPUTERS

(BASIC CHARACTERISTICS)

HARDWARE

SOFTWARE

PROCEDURES

PEOPLE

CLASSES OF COMPUTERS

PERSONAL COMPUTERS

MINICOMPUTERS

MAINFRAME SYSTEMS

SUPERCOMPUTERS

ELEMENTS OF A COMPUTER SYSTEM

INPUT DEVICES

CENTRAL PROCESSING UNIT

OUTPUT DEVICES

SECONDARY STORAGE DEVICES

COMPUTER SOFTWARE

THE COMPUTER PROGRAMS THAT CONTROL THE PROCESSING OF DATA IN A COMPUTER SYSTEM.

TYPES OF COMPUTER SOFTWARE

OPERATING SYSTEM SOFTWARE

APPLICATION SYSTEM SOFTWARE

OPERATING SYSTEM SOFTWARE

A GROUP OF PROGRAMS THAT MONITOR AND CONTROL ALL INPUT/OUTPUT AND PROCESSING OPERATIONS.

APPLICATION SYSTEM SOFTWARE

SOFTWARE THAT IS DESIGNED SUCH THAT A SPECIFIC TASK OR GROUP OF TASKS IS PERFORMED.

PROGRAMMING LANGUAGES

FIRST GENERATION: MACHINE LANGUAGE

SECOND GENERATION: ASSEMBLY LANGUAGE

THIRD GENERATION: PROCEDURAL LANGUAGE

FOURTH GENERATION: NONPROCEDURAL LANGUAGE

FIFTH GENERATION: KNOWLEDGE BASED

TOTAL QUALITY MANAGEMENT

TQM

INSTRUCTOR'S GUIDE

MODULE F - TQM

TABLE OF CONTENTS

I. TABLE OF CONTENTS 1

II. MODULE OUTLINE WITH LECTURE NOTES 2

A. LESSON 1 (TQM PHILOSOPHY) 2
B. LESSON 2 (TQM PROCESS) 3

III. VIEWGRAPHS VF-1

MODULE F - LESSON 1 OUTLINE
Total Quality Management (TQM) Philosophy

Quality {use viewgraph VF-1}

A. Definition: Giving people what they have the right to expect. Meeting the customer's needs and expectations.

B. Two views. (use viewgraph VF-2}
1. Traditional
2. Current position

Total Quality Management (TQM) {use viewgraph VF-3}

A. Definition: The application of quantittative methods and human resources to control and improve a myriad of processes. Evolved from methods of quality control.

B. Quality Control. {use viewgraph VF-4}
1. Measures actual quality performance
2. Compare it to standards
3. Act on the differences

C. Quality Management. {use viewgraph VF-5}
1. Definition: A process for change and improvement in everything: products, services and all work processess.
2. Focuses on continuous improvement in all areas.
3. Defines process for change and improvement in everything.
4. Involvement of all personnel.
5. Emphasis on teamwork.
6. Goal - Achieve continuous improvement.

D. Deming's Management Principles. (Use viewgraph VF-6}
See Deming's 14 points

E. Management Philosophy. {use viewgraph VF-7}
1. Meet customer requirements
2. Achieve continuous improvement
3. Make decisions based on TQM tools
4. Communication essential for success
5. Quality emphasized from top down
6. Focus is on people
7. Process, not people, is root of quality problems
8. Quality is top management's responsibility
9. Quality before profits

MODULE F - LESSON 2 OUTLINE
TQM PROCESS

Process.

A. Overview - The continuous improvement of performance at all levels of an organization.

B. Composition. {use viewgraph VF-8}
   1. Vision
      a. Focused on goals and objectives
      b. Provide continuity of decisions
      c. Recognize challenges of change
      d. Guide management into the future

   2. Principles
      a. Defines fundemental concepts
      b. Basic rules for decision making
      c. Framework to form expectations/judge behaviors
      d. Basics {use viewgraph VF-9}
         1) Continuous process improvement
         2) Process knowledge
         3) User focus
         4) Commitment
         5) Top-down management
         6) Constancy of purpose
         7) Total involvement at all levels
         8) Teamwork
         9) Investment in people

   3. Practices
      a. Used to implement the guiding principles
      b. Demonstrate and reinforce TQM behavior
      c. Fundementals of TQM {use viewgraph VF-10}
         1) Planning and goal setting
         2) Promoting improvement
         3) Communication
         4) Skill-building
         5) Resource optimization

   4. Techniques & Tools {use viewgraph VF-11}
      a. Definition: Techincal methods employed in the course of practicing TQM.
      b. Systematic procedures
      3. Quantitative and qualitative methods

C. Implementation. {use viewgraph VF-12}

   1. Organizational commitment
   2. Provides structure
   3. Provides methodical approach

QUALITY

GIVING PEOPLE WHAT THEY HAVE THE RIGHT TO EXPECT. MEETING THE CUSTOMER'S NEEDS & EXPECTATIONS.

TWO VIEWS OF QUALITY

TRADITIONAL VIEW	CURRENT POSTURE
● PRODUCTIVITY AND QUALITY ARE CONFLICTING GOALS.	● PRODUCTIVITY GAINS ARE ACHIEVED THROUGH QUALITY IMPROVEMENTS.
● QUALITY DEFINED AS CONFORMANCE TO SPECIFICATIONS OR STANDARDS.	● QUALITY IS CONFORMANCE TO CORRECTLY DEFINED REQUIRMENTS SATISFYING USER NEEDS.
● QUALITY MEASURED BY DEGREE OF NONCONFORMANCE.	● QUALITY IS MEASURED BY CONTINUOUS PROCESS/PRODUCT IMPROVEMENT AND USER SATISFACTION.
● QUALITY IS ACHIEVED THROUGH INTENSIVE PRODUCT INSPECTION.	● QUALITY IS DETERMINED BY PRODUCT DESIGN AND IS ACHIEVED BY EFFECTIVE PROCESS CONTROLS.
● SOME DEFECTS ARE ALLOWED IF PRODUCT MEETS MINIMUM QUALITY STANDARDS.	● DEFECTS ARE PREVENTED THROUGH PROCESS CONTROL TECHNIQUES.
● QUALITY IS A SEPARATE FUNCTION AND FOCUSED ON EVALUATING PRODUCTION.	● QUALITY IS A PART OF EVERY FUNCTION IN ALL PHASES OF THE PRODUCT LIFE CYCLE.
● WORKERS ARE BLAMED FOR POOR QUALITY.	● MANAGEMENT IS RESPONSIBLE FOR QUALITY
● SUPPLIER RELATIONSHIPS ARE SHORT TERMED AND COST ORIENTED.	● SUPPLIER RELATIONSHIPS ARE LONG TERM AND QUALITY ORIENTED.

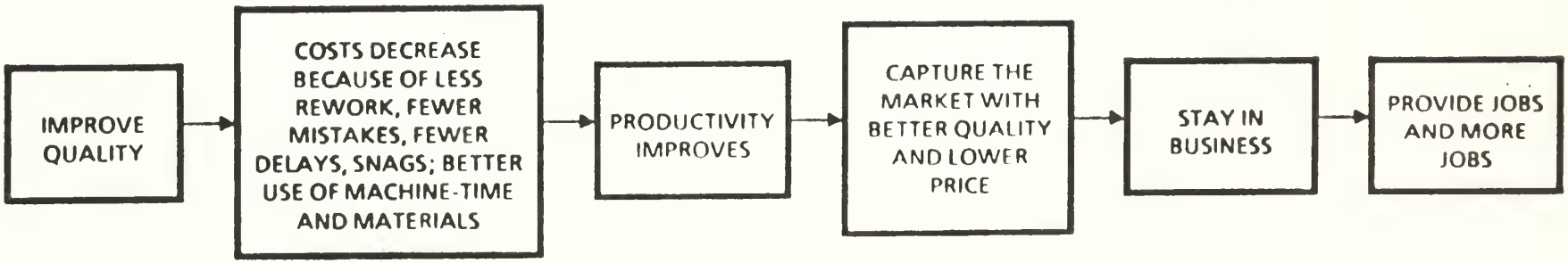
QUALITY CONTROL

+ MEASURES ACTUAL QUALITY PERFORMANCE

+ COMPARE IT TO STANDARDS

+ ACT ON THE DIFFERENCES

THE CHAIN REACTION FOR QUALITY IMPROVEMENT



DR. DEMING'S

14 MANAGEMENT PRINCIPLES

The 14 points apply anywhere, to small organizations as well as to large ones, to service industry as well as to manufacturing. They apply to a division within a company.

1. CREATE CONSTANCY OF PURPOSE TOWARD IMPROVEMENT of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

2. ADOPT THE NEW PHILOSOPHY. We are in the new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

3. CEASE DEPENDENCE ON INSPECTION TO ACHIEVE QUALITY. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

4. END THE PRACTICE OF AWARDING BUSINESS ON THE BASIS OF PRICE TAG. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.

5. IMPROVE CONSTANTLY AND FOREVER THE SYSTEM of production and service, to improve quality and productivity, and thus constantly decrease costs.

6. INSTITUTE TRAINING ON THE JOB.

7. INSTITUTE LEADERSHIP. THE AIM OF SUPERVISION SHOULD BE TO HELP PEOPLE and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of production worker.

8. DRIVE OUT FEAR, so that everyone may work effectively for the company.

9. BREAK DOWN BARRIERS BETWEEN DEPARTMENTS. People in research, design, sales and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.

10. ELIMINATE SLOGANS, EXHORTATIONS AND TARGETS FOR THE WORK FORCE asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus beyond the power of the work force.

11. ELIMINATE WORK STANDARDS (QUOTAS) on the factory floor. Substitute leadership. ELIMINATE MANAGEMENT BY OBJECTIVE. Eliminate management by numbers, numerical goals. Substitute leadership.

DR. DEMING'S
14 MANAGEMENT PRINCIPLES

12. REMOVE BARRIERS that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means ABOLISHMENT OF THE ANNUAL OR MERIT RATING of management by objective.

13. Institute a vigorous program of EDUCATION ans self-improvement.

14. Put everybody in the company to work to accomplish the transformation. THE TRANSFORMATION IS EVERYBODY'S JOB.

TQM

PHILOSOPHY

+ MEET CUSTOMER REQUIREMENTS
+ ACHIEVE CONTINUOUS IMPROVEMENT
+ MAKE TQM BASED DECISIONS
+ COMMUNICATION IS ESSENTIAL
+ QUALITY EMPHASIZED FROM TOP DOWN - FOCUS ON PEOPLE
+ PROCESS, NOT PEOPLE, ARE ROOT OF QUALITY PROBLEMS
+ QUALITY IS TOP MANAGEMENT RESPONSIBILITY
+ QUALITY IS A PRODUCT OF PREVENTION
+ QUALITY BEFORE PROFITS

TECHNIQUES & TOOLS

PRACTICES

PRINCIPLES

VISION

BASIC TQM

PRINCIPLES

+ CONTINUOUS PROCESS MANAGEMENT
+ PROCESS KNOWLEDGE
+ USER FOCUS
+ COMMITMENT
+ TOP-DOWN MANAGEMENT
+ CONSTANCY OF PURPOSE
+ TOTAL INVOLVEMENT
+ TEAMWORK
+ INVESTMENT IN PEOPLE

FUNDEMENTALS
OF
TQM

+ PLANNING & GOAL SETTING

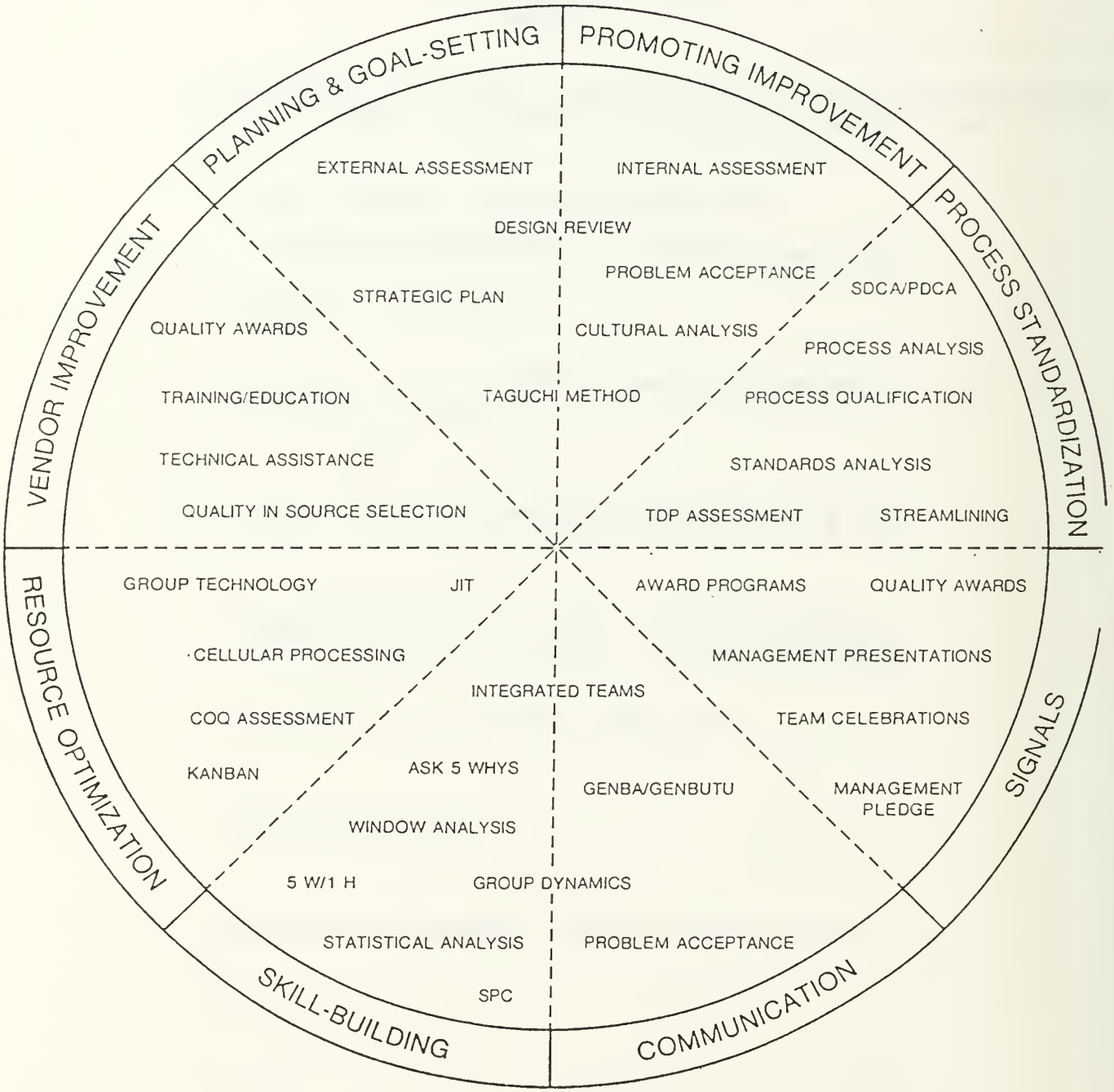
+ PROMOTING IMPROVEMENT

+ COMMUNICATION

+ SKILL-BUILDING

+ RESOURCE OPTIMIZATION

TQM TECHNIQUES AND TOOLS



IMPLEMENTATION

+ ORGANIZATIONAL COMMITMENT

+ PROVIDES STRUCTURE

+ PROVIDES METHODICAL APPROACH

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